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For Approval

CANADA BORDER SERVICES AGENCY EXPLORING ADDITIONAL ALTERNATIVES TO DETENTION

For the President

PURPOSE

To provide an update on the development of the Canada Border Services Agency's (CBSA) Electronic Monitoring (EM) component of the Alternative to Detention (ATD) Framework, to be piloted in the Greater Toronto Area Region (GTAR).

ISSUE

In order to deliver the EM component of the ATD Framework, the CBSA is seeking authority to enter into a Memorandum of Understanding (MOU) with Correctional Service Canada (CSC) to gain access to EM equipment and related monitoring services.

BACKGROUND

As a result of the Government's response to the Standing Committee on Public Safety and National Security (SECU) September, 2012 report entitled "A Study of Electronic Monitoring in the Correctional and Immigration Settings", the CBSA has been asked to examine the use of EM in the immigration setting. The CBSA seeks to enable the release of higher risk individuals from detention wherein the risks to public safety and program integrity can be mitigated, through an approach that combines community case management and supervision with EM programming.

Benefiting from the positive outcomes of CSC's EM pilot and decision to formalize an ongoing EM program, the CBSA is implementing a smaller pilot in the GTAR and is proposing to enter into an agreement with CSC to gain access to their EM platform and related support services. The launch of an EM pilot project, accompanied by an MOU between CSC and CBSA would provide the CBSA with an opportunity to gain the knowledge and experience required to assess the validity of a CBSA EM program.

The CBSA seeks to implement an EM pilot in the GTAR in spring 2018 for two (2) years, with two (2) additional option years.

Canada

[redacted]

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STATUS

By maximizing the current CSC EM contract, the CBSA would gain access to monitoring services currently available to individuals under CSC supervision.

CSC's existing EM procedures and response protocols would be maintained for CBSA's cases, and would
for the CBSA's high risk clientele. The installation and removal of EM devices and the enforcement of EM violations would remain the responsibility of the CBSA.

As a part of the ATD budget allotments, as of April 2018, the CBSA will provide CSC with funds for a resource at the CSC National Monitoring Centre (NMC) to support service delivery to CBSA clients. The dedicated employee will be assigned to work on CBSA's EM cases within the CSC EM project team.

It is anticipated that the CBSA would require CSC to supply Under the MOU, CBSA would cover the daily rental cost of the EM equipment as well as any costs associated with consumable items such as straps, clips, installation kits, etc. CSC would train CBSA staff to apply and remove the EM devices.

NEXT STEPS

CSC has consulted internally with their contracting and material services division and they are confident any risks associated with entering into an MOU with the CBSA can be mitigated. The CBSA has solidified the budgetary requirements for this EM relationship and CSC is confident that there is sufficient funding to manage monthly costs associated with the CBSA's usage of

A briefing note has been sent to CSC Commissioner Don Head for the approval required to enter into an MOU. Once signed off, CSC and the CBSA will work cooperatively to draft and finalize the MOU, to develop communications and media lines regarding the proposed pilot, and create the necessary products required for implementation and training.

[redacted]

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RECOMMENDATION

We recommend that the CBSA enter into a MOU with CSC for Electronic Monitoring Services. The expertise, best practices and established protocols that currently exist at CSC will ensure successful EM implementation for the Agency.

I remain available to discuss this topic at your convenience.

Peter Hill, Executive Vice-President
Programs Branch

ATTACHMENTS

1. Briefing note to Commissioner Don Head

[redacted]

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Correctional Service Canada | Service correctionnel Canada

Briefing Note to the Commissioner | **Note d'information au Commissaire**

Subject
Objet

CANADA BORDER SERVICES AGENCY REQUEST ACCESS TO THE USE OF CSC'S ELECTRONIC MONITORING SERVICES

Issue:

The Canada Border Services Agency (CBSA) has approached CSC to enter into a Memorandum of Understanding (MOU) to gain access to Electronic Monitoring (EM) equipment and related monitoring services.

Background:

As a result of the Government's response to the Standing Committee on Public Safety and National Security (SECU) report entitled "A Study of Electronic Monitoring in the Correctional and Immigration Settings", the CBSA has been asked to examine the use of EM in the immigration setting. By combining community case management and supervision for high and medium risk individuals with electronic supervision tools as part of their Alternatives to Detention Framework, the CBSA seeks to enable release of individuals from detention wherever appropriate and risks to public safety and program integrity can be mitigated.

Similar to CSC's initial pilot, the CBSA is implementing a smaller pilot in the Greater Toronto Area (GTA) and is proposing to enter into an agreement with CSC to gain access to their EM platform and related support services. The launch of an EM pilot project, accompanied by an MOU between CSC and CBSA, would provide the latter an opportunity to gain EM knowledge and experience required to assess the validity of a CBSA program.

The CBSA would like to pursue the implementation of their GTA pilot beginning in spring 2018. It is proposed to be a two (2) year pilot with two (2) additional option years.

Current Status:

CSC currently has a three (3) year EM contract (expiring on March 30, 2018) with two (2) option years. CSC has elected to exercise the first option year of the contract. As there have been no advancements in technology that would warrant the posting of a new Request for Proposal (RFP), it is likely that CSC will exercise the second option year as well and this would provide the two (2) years necessary for the CBSA pilot. This would also allow the CBSA to attain the same monitoring and services currently being performed for offenders under CSC supervision.

Under CSC's current contract it has access to up to 300 devices. Today CSC has approximately 118 offenders on EM on any given day. Even with CSC's projected increase in EM to 175 offenders; it would have the required flexibility under the existing contract to supply the CBSA with up to 40 devices.

Resource person - Personne Ressource Michael Bettman Telephone – Téléphone 613-943-9256	Date OCT 20 2017	Approved by - Approuvé par Sector Head - Chef de secteur Macaulay

CSC/SCC 0021-7 (R-05-09) (Word Version)

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CSC's existing EM procedures and response protocols would not have to be greatly altered for CBSA's cases. EM would be used on immigration cases to monitor curfew and movement restrictions (inclusion and exclusion zones) for its high risk clientele. The sole difference is that the National Monitoring Centre (NMC) officers would contact the CBSA directly to report violations. The installation and removal of EM devices on immigration cases would be handled by CBSA staff.

The CBSA would be required to contribute resources to the NMC to support the service delivery as of April 2018. CSC's monitoring ratio in the NMC is one monitoring officer for every 100 offenders (devices) and with the added cases this MOU brings, additional resources need to be considered. Following consultation with the NMC, it was agreed that one monitoring officer would be initially be sufficient to cover the workload associated with the monitoring of CBSA cases as they will take a gradual approach to implementation. The NMC and CBSA would revisit the need to add additional NMC officers should the number of CBSA cases approach the maximum of 40 devices over the span of the two year pilot.

Under the MOU, CBSA would cover the daily rental cost of the EM equipment as well as any costs associated with consumable items such as straps, clips, installation kits, etc.

CSC would train CBSA staff to apply and remove the EM devices, which is similar to the existing EM Specialist training that the EM Project Team delivers to community staff. Any travel costs for CSC to train CBSA staff would be covered by CBSA.

Analysis:

Entering into the MOU will not impede CSC's provision of EM services. The CBSA would cover all associated costs for services and equipment under the MOU. Now that CBSA funding has been secured, the EM budget (as identified in the CBSA Alternatives to Detention business case) will be sufficient to manage the monthly costs of the CBSA's usage of up to 40 devices.

The EM Project Team has consulted with CSC's Contracting and Materiel Services division which indicated that while there could be some risks entering into a MOU with CBSA based on the scope of the RFP, they were confident that these risks could be mitigated.

Interdepartmental Affairs (IA) has also been advised of the preliminary discussion with CBSA. If there is support to enter into a MOU then the EM project team will work with IA.

CSC and the CBSA will work cooperatively to develop communications and media lines regarding the proposed pilot.

[redacted]

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Recommendation:

The Correctional Operations & Programs Sector recommends pursuing a MOU with CBSA that would allow the CBSA to access EM services.

☑ I approve CSC entering into a Memorandum of Understanding with the Canadian Border Service Agency for Electronic Monitoring Services.

☐ I do not approve CSC entering into a Memorandum of Understanding with the Canadian Border Service Agency for Electronic Monitoring Services.

Don Head, Commissioner

OCT 24 2017
Date

[redacted]

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UNCLASSIFIED

For information

CANADA BORDER SERVICES AGENCY
NATIONAL RADIO STRATEGY

For the President

ISSUE

At the Finance and Investment Management Committee (FIMC) meeting of May 24, 2017, the 2017-18 funding for the Canada Border Services Agency (CBSA) Radio Program was approved. At the same meeting, the President asked for more information on the Radio Program, including the National Radio Strategy. The action item from the Record of Decisions was that "*the Comptrollership Branch and ISTB is to share with the President the detailed radio strategy produced last year.*"

BACKGROUND

Since 2010, the Radio Program has been the responsibility of the Science and Engineering Directorate (S&E) of the Information, Science and Technology Branch (ISTB), and governance currently falls under the Field Technology Support Program. The Radio Program ensures that CBSA field officers have effective and efficient two-way communication to assist in the performance of their duties and to support their health and safety.

In 2014, Ernst and Young conducted an independent review of the S&E Program. One of the recommendations of the review was to produce a strategic plan. As a result, a five-year CBSA Radio Strategy was developed in late 2015 – early 2016. There was a high degree of formal consultation in developing the strategy, from Border Services Officers to Directors General. Costs were included, with several options from Bronze (status quo) to Platinum. Although the strategy has been shared with the CBSA Vice-Presidents, it has not yet been presented for decision to members of the Executive Committee.

Over the last few months, the Assets, Acquired Services and Comptrollership Systems Division (AASCS) of Comptrollership Branch has worked with S&E to develop a strategic procurement and assets management approach for the Radio Program. This commodity management approach will support investment decisions by providing improved procurement and support options while considering all aspects of life-cycle asset management.

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CONSIDERATIONS

Having access to modern radio communication equipment and systems that are interoperable with our partners will allow the Agency to secure the border more effectively and efficiently, while ensuring the safety and security of CBSA field officers. CBSA participates in many Public Safety-led initiatives such as the Canada-US interoperability Working Group, the intent of which is to enable and enhance interoperability between partner first responder agencies in Canada and the United States. However, these activities will bring value to CBSA only if our equipment is capable of interconnecting with that of our partners.

At present, over 60% of the CBSA's radio assets need to be modernized just to meet operational requirements. The majority of the Agency's radios are still unencrypted, analog devices. The National Radio Strategy proposes a cost-effective approach to modernization, involving the continued migration of CBSA officers from analog to digital communications systems, with expanded use of third-party services where feasible and only developing CBSA-owned radio networks when needed. Leveraging provincial and municipal public safety radio systems increases our connectivity to local partners and also allows us to maintain a migration path towards future Public Safety Broadband Network (PSBN).

A modernized radio program can be achieved with a total investment (current plus recommended incremental) of $14.7M Vote 5 (non-salary), $17.4M Vote 1 (non-salary), and $2.4M Vote 1 (salary) distributed over a three year period. A sustainable radio program can then be maintained with $3.7M Vote 5 (non-salary), $7.6M Vote 1 (non-salary) and $1.2M Vote 1 (salary) per annum in the years following the investment period. A detailed breakdown is provided in the accompanying documentation. These numbers have been reviewed and validated by Comptrollership Branch.

NEXT STEPS

Include modernization of two-way radios as part of the Agency 3-5 year sustainability plan.

ATTACHMENT(S)

1. **CBSA National Radio Strategy 2016-2021**
2. **Overview of the National Radio Strategy 2018-2023**
3. **Strategic Procurement and Assets Management – National Radio Strategy**
4. **Record of Decisions – Financial and Investment Management Committee (FIMC) – May 24, 2017**
5. **Costing Sheet - Radio Program – Full Costing – Invest/Gold**
6. **Costing Sheet – Radio Program – Full Costing - Minimize/Silver**

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Approved by:

A/Vice-President: Gino Lechasseur, 613-946-9694 _____
A/Director General: Phil Lightfoot, 613-952-1205
Director: N/A
Author: Phil Lightfoot
Date:

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The CBSA Radio Program and National Radio Strategy 2018-2028

Briefing for the President
October 2017

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Objectives

- Provide an overview of the CBSA Radio Program
- Describe the current Radio Program challenges and operational issues
- Outline a proposed National Radio Program Strategy
- Seek approval on a Way Forward: Options for consideration

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Context

- The CBSA provides “Push-to-Talk” (PTT) Radio for two-way voice communications by Operations Branch employees at POEs and for Inland Enforcement operations
- The CBSA radio “system” is **a patchwork** of legacy Analog and newer Digital platform technologies with myriad capabilities, lifecycles, costs and vulnerabilities across the country
- Current Radio Program human and financial resource levels **cannot keep pace** with advancing technology and interoperability requirements of security partners for joint operations and response
  - 60% of existing CBSA radio fleet is based on obsolete, analog technology that is not interoperable with other first responder agencies
  - Over 10% of CBSA radio fleet uses commercial services which are not secure, robust, or interoperable with other first responder agencies
- A **National Radio Program Strategy** was developed in 2015-16 to address the current challenges and provide a **sustainable way forward**

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CBSA Radio Communication Objectives

WHAT

- Enhance CBSA front-line officers operational effectiveness with access to secure, reliable digital two-way communication tools
- Support interoperability with first responder partners in Canada and US today and maintain a migration path towards future Public Safety Broadband Network (PSBN)

HOW

- Subscribe to radio services on regional, provincial and municipal infrastructure that is purpose-built for public safety and government use
  - Where no subscription services are practical or available, choose technology solutions which allow the CBSA to have interoperability with local partners
  - RCMP takes a similar approach of adapting to regional radio context and does not use a single national radio system for all operational Divisions
- Participate in interprovincial and CA-US working groups to develop mutual awareness of partner organization needs for interoperability, advance implementation of existing technology solutions that enhance interoperability today and exercise this interoperability capability
- Support DND-ISED-PS efforts toward a Canadian PSBN and ensure the CBSA is positioned to leverage its benefits for interoperability

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Funding Options for Sustainability

B. Minimize ("Silver"): Lowest-cost upgrade to Digital; will not all be public-safety grade equipment (P25)

- Most CBSA radios will be Digital, Encrypted technology over next 3-5 years (improve from 30% now to almost 90%)
- Assume 10 year re-cap period, 5% maintenance expenses, purchase lower capability, lowest cost HW where feasible
- Some teams in BC, Quebec and NOR will be on non-interoperable systems because of lack of suitable/affordable subscription services
- Incremental Radio Program Funding required *over* assumed baseline of $6.6M: $3.2M (2018/19); $4.7M (2019/20); $5.8M (2020/21) and $5.9M (Ongoing). Total of $12.5M ongoing; five incremental FTEs
- **Require total of $14.7M Vote 5 (non-salary), $17.4M Vote 1 (non-salary), and $2.4M Vote 1 (salary) over years 1-3 to recapitalize old equipment and maintain the Radio Program; $3.7M Vote 5 (non-Salary), $7.6M Vote 1 (non-salary) and $1.2M Vote 1 (salary) per annum thereafter to sustain the Radio Program;**
- **RECOMMENDED** as most affordable acceptable option

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Recommended Funding Option

B. Minimize: Investment funds required for the next 3 years. Sustainability funds required on an ongoing basis thereafter with an average amount shown for years 4-10.

RADIO PROGRAM COSTS	YR1	YR2	YR3	YR4 - YR10 (average)
VOTE 5 replacement capital (non-salary)	$ 4,822,000	$ 5,046,500	$ 4,798,000	$ 3,675,153
VOTE 1 maintenance (non-salary)	$ 4,777,640	$ 5,856,269	$ 6,772,097	$ 7,653,622
VOTE 1 maintenance (salary including current A-Base)	$ 649,851	$ 827,049	$ 919,354	$ 1,181,770
TOTAL	**$ 10,249,491**	**$ 11,729,818**	**$ 12,489,452**	**$ 12,510,545**
INCREMENTAL FTE	**2**	**4**	**5**	**5**

Goal 1: Migration of majority of BSOs to Digital, Encrypted systems from legacy Analog systems and increase human resources to a sustainable level

Goal 2: Provide access to interconnected and interoperable infrastructure with migration path to connectivity with future PSBN

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Next Steps

Include modernization of two-way radios as part of the Agency 3-5 year sustainability plan.

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Annex

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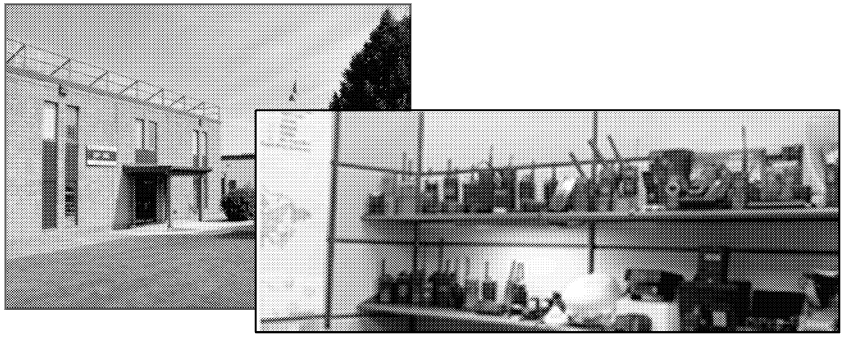
CBSA Radio Program

Science and Engineering Directorate Radio Group - Ottawa



Capabilities:

- Over 8,700 radios deployed across the Agency
- Legacy Analog Radio Platform (60%)
  - CBSA PASS System
  - Most of our land border crossings and certain airports.
- Digital Radio Platform(s) 40%)
  - CBSA digital radio systems
  - Provincial, territorial, municipal digital radio systems
  - Commercial Systems
  - Satellite Communication

Role of Radio Group:

- "To ensure that CBSA field officers have effective and efficient two-way radio communication to assist in the **performance of their duties and support their health and safety**"
- Technical staff of 4, located in Ottawa
- Radio communication functional authority for the Agency managing a wide range of activities
- Highly focused on the CBSA field Operations

Services:

- Design, develop, implement, and deliver innovative radio solutions
- Support and maintain deployed radio equipment/systems in the field
- Expertise in radio communication system and equipment troubleshooting
- Training of CBSA personnel on new and existing radio systems
- Support the development of regional SOPs for two-way radio communication systems
- Provide engineering design and expertise for the implementation of in-building systems using range extenders, repeaters or bi-directional amplifiers
- Provide engineering expertise on wireless Ethernet bridge implementation (backhaul) to transmit data, real time video and voice to/from remote locations

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National Radio Program Strategic Priorities

STRATEGIC PRORITIES AND OBJECTIVES	
Strategic Priority	**Strategic Objective**
PRIORITY 1 Modern Radio Communication Technology	**Objective 1.1 Efficient and Effective Radio Equipment, Systems and Accessories** **Objective 1.2 Improved Radio Coverage** **Objective 1.3 Interoperability with Internal and External Partners** **Objective 1.4 Use of Supporting Radio Solutions (e.g. Communication Centers, GPS locator)**
PRIORITY 2 Resilient Workforce	**Objective 2.1 Improved User Access to Support** **Objective 2.2 Training and Field Exercises** **Objective 2.3 Standard Operating Procedures (SOP)**
PRIORITY 3 Financial and Policy Framework	**Objective 3.1 Investment and Sustainability Plan for the Radio Program** **Objective 3.2 Policies to Support Modern Radio Technology**

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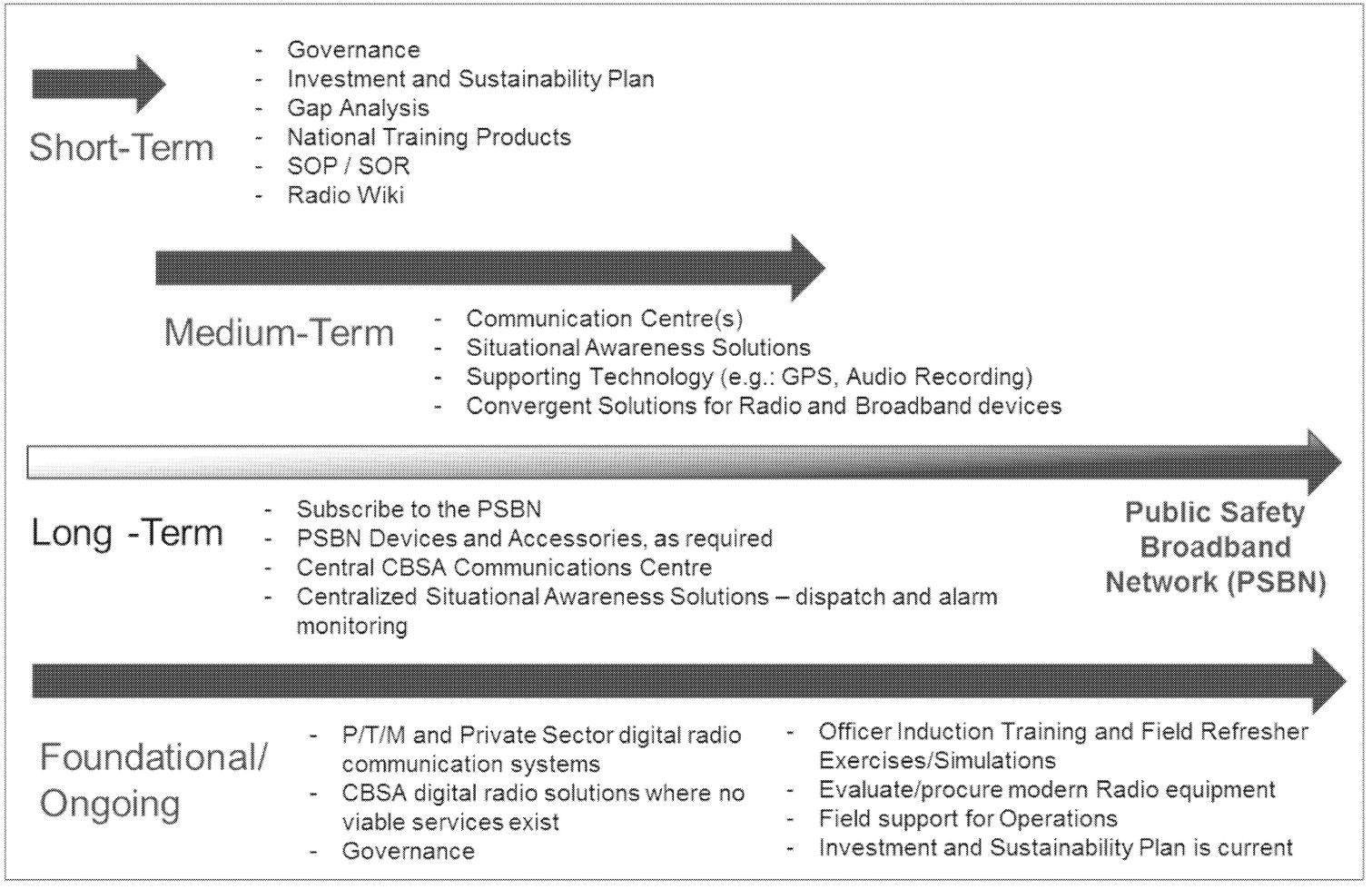
Radio Program Strategy Supporting Initiatives



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National Radio Program Strategy Consultation

- Questionnaire sent Fall 2015 to internal stakeholders within Regional Operations to obtain feedback in 2015-16 on key aspects related to CBSA's radio landscape
  - Over 120 BSOs from all regions provided responses

- Comments also received from Regional Director Generals, S&E DG and ISTB VP

- Comments received from members of the Radio Communication Working Group (Director level in Programs, Operations, HR, Comptrollership)

- Engaged with Federal, Provincial and Territorial Partners on their radio communication strategies as well as interprovincial and CA-US working groups to achieve future radio interoperability capability
  - RCMP leading CA-US interoperability activity

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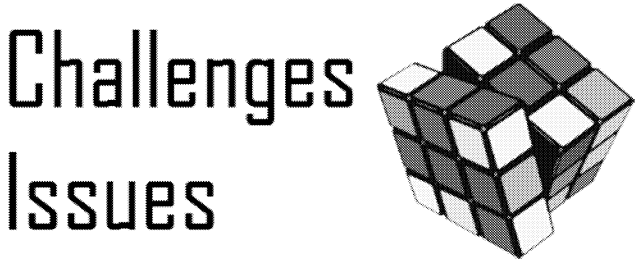
Radio Program Challenges

- Current funding level does not permit delivery of a sustainable, modern radio program
- Disparate national "patchwork" with **uneven life cycle management** and **very slow migration to digital technologies**



- Large number of radios on legacy Analog non-encrypted systems that are susceptible to **eavesdropping**, **poor/no interoperability with security partners**, and **shrinking vendor support**
- Very small Radio Group (4 technical staff responsible for entire Radio Program) that is **stretched to its limits** "keeping the lights on"
- **No technical presence in Regions** to provide Operations with support during operational activities at POEs and for Inland Enforcement when issues arise
- **Lack of Agency capacity to develop Program Policy,** optimize distribution within teams/locations, update Standard Operating Procedures (SOP), establish Specific Operational Requirements (SOR), and train users which leads to **inconsistent use of radio communications field assets**
- **Lengthy procurement process** to renew program

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Radio Communication Interoperability Roadmap

Operational Effectiveness

Goal: Enhanced CBSA operational effectiveness with interoperable digital and secure comms with public safety partners in Canada and the USA

Continued migration of CBSA radio users to provincial or municipal public safety networks such as AFRRCS, NBTMR etc…

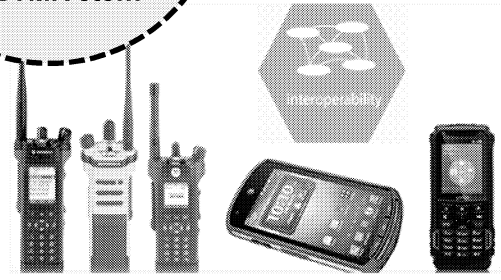
Legacy CBSA radio technology still in use at most land border crossings and some airports

Some E&I teams and some airports (eg: YEG, YYC)

Niagara/ Fort Erie

CBSA Vancouver Metro Radio System

Pearson International Airport (VCOM)



Legacy Analog (CBSA PASS; mid-1990s)

Commercial LTE radio (Bell)

Commercial two-way radio (Canquest)

P25 (Open Standards)

Subscription to public safety networks

Gateways (link Radio with Cellular Broadband)

\+ National, Private LTE (Future Public Safety Broadband Network)

Interoperability Capability

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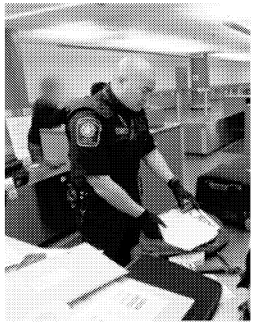
Stakeholders

Canada Border Services Agency

- Border Services Officers (BSO) – Land, Airport, Marine, Rail and Postal
- Enforcement and Intelligence (E&I) Officers
- CBSA Radio Communication Working Group provides oversight and governance from multiple branches



Federal, Provincial, Territorial and Municipal Governments

- Memoranda of Understanding (MOU)
- Federal Public Safety Radio Communication Working Group, RCMP, Public Safety Canada
- SSC, PSPC, Defence R&D Canada - Centre for Security Science (DRDC CSS)
- Innovation, Science and Economic Development

NL FleetNet
Nova Scotia Trunked Mobile Radio System Network TMR 2
Prince Edward Island Canada
New Nouveau Brunswick Canada
RENIR
MTS Mobility FleetNet 800
Alberta Government
Yukon Government
Public Safety Canada
Canadian Safety and Security Program / Programme canadien pour la sûreté et la sécurité
Regional Municipality of Peel
Provincial Public Safety Telecommunications Network
SSC SPC
Innovation, Science and Economic Development Canada
Windsor
Ottawa

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Stakeholders (Cont'd)

Private Sector Service Providers

- Commercial Radio Systems
- Satellite Communication Systems
- Maintenance Contracts
- Antenna Site Leases

Radio Communication Equipment Vendors

- Portable Radios
- Mobile Radios
- Desktop Radios
- Radio Accessories
- Antennas
- Measurement Equipment

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PROPOSED INVESTMENT:

RADIO PROGRAM COSTS	YR1	YR2	YR3	YR4 - YR7 average
VOTE 5 - replacement capital (non-salary)	$ 7,781,000.00	$ 10,399,500.00	$ 13,128,000.00	$ 4,500,250.00
VOTE 1 - maintenance (non-salary)	$ 5,145,800.00	$ 6,971,794.00	$ 8,487,487.82	$ 11,047,962.82
VOTE 1 - maintenance (salary, including current A-base)	$ 649,851.42	$ 827,049.19	$ 919,354.93	$ 1,181,770.25
TOTAL	**$ 13,576,651.42**	**$ 18,198,343.19**	**$ 22,534,842.75**	**$ 16,729,983.07**

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DEVICES	HARDWARE DESCRIPTION	estimated purchase cost per unit	current inventory	total asset value	# required	total asset value	delta (units)	RADIO REPLACEMENT PLAN (by asset units) YR1	YR2	YR3	RADIO REPLACEMENT PLAN (by dollar value) YR1	YR2	YR3
HANDHELD1	antiquated/obsolete	$ 1,500.00	4401	$ 6,601,500.00	0	$ -	-4401						
HANDHELD2	non interoperable, non-standard radio (only used as a last resort where viable alternatives do not exist or were not affordable, some existing users will be moved to better options with the planned radio replacements)	$ 500.00	1276	$ 638,000.00	652	$ 326,000.00	-624						
HANDHELD3	low interoperability radio (only appropriate in very few jurisdictions)	$ 2,000.00	526	$ 1,052,000.00	526	$ 1,052,000.00	0						
HANDHELD4	low cost two-way radios (limited compatibility and not usable on all subscribed systems)	$ 2,500.00	313	$ 782,500.00	0	$ -	-313						
HANDHELD5	high interoperability two-way radios (usable on almost all subscribed systems)	$ 6,000.00	2159	$ 12,954,000.00	5964	$ 35,784,000.00	3805	1095	1376	1485	$ 6,570,000.00	$ 8,256,000.00	$ 8,910,000.00
SUBTOTAL				**$ 22,028,000.00**		**$ 37,162,000.00**		**1095**	**1376**	**1485**	**$ 6,570,000.00**	**$ 8,256,000.00**	**$ 8,910,000.00**
DESKTOP1	antiquated/obsolete	$ 1,500.00	90	$ 135,000.00	0	$ -	-90						
DESKTOP2	low interoperability radio (only appropriate in very few jurisdictions)	$ 2,000.00	0	$ -	0	$ -	0						
DESKTOP3	low cost two-way radios (limited compatibility and not usable on all subscribed systems)	$ 2,500.00	0	$ -	0	$ -	0						
DESKTOP4	high interoperability two-way radios (usable on almost all subscribed systems)	$ 6,000.00	76	$ 456,000.00	166	$ 996,000.00	90	60	51	10	$ 360,000.00	$ 306,000.00	$ 60,000.00
SUBTOTAL				**$ 591,000.00**		**$ 996,000.00**		**60**	**51**	**10**	**$ 360,000.00**	**$ 306,000.00**	**$ 60,000.00**
MOBILE1	antiquated/obsolete	$ 1,500.00	51	$ 76,500.00	0	$ -	-51						
MOBILE2	low interoperability radio (only appropriate in very few jurisdictions)	$ 2,000.00	15	$ 30,000.00	15	$ 30,000.00	0						
MOBILE3	low cost two-way radios (limited compatibility and not usable on all subscribed systems)	$ 2,500.00	0	$ -	0	$ -	0						
MOBILE4	high interoperability two-way radios (usable on almost all subscribed systems)	$ 6,000.00	249	$ 1,494,000.00	339	$ 2,034,000.00	90	35	203	101	$ 210,000.00	$ 1,218,000.00	$ 606,000.00
SUBTOTAL				**$ 1,600,500.00**		**$ 2,064,000.00**		**35**	**203**	**101**	**$ 210,000.00**	**$ 1,218,000.00**	**$ 606,000.00**
SAT PHONES	satellite phones	$ 1,700.00	170	$ 289,000.00	170	$ 289,000.00	0						
SUBTOTAL				**$ 289,000.00**		**$ 289,000.00**							
SYSTEM ENHANCEMENTS													
ENHANCEMENT1	antiquated/obsolete repeater	$ 12,000.00	40	$ 480,000.00	0	$ -	-40						
ENHANCEMENT2	antiquated/obsolete extender	$ 10,000.00	28	$ 280,000.00	0	$ -	-28						
ENHANCEMENT3	antiquated/obsolete alarm receiver	$ 1,000.00	83	$ 83,000.00	0	$ -	-83						
ENHANCEMENT4	low interoperability radio repeater (only appropriate in very few jurisdictions)	$ 2,500.00	1	$ 2,500.00	0	$ -	-1						
ENHANCEMENT5	high interoperability digital standard repeater	$ 22,000.00	22	$ 484,000.00	93	$ 2,046,000.00	71	10	17	66	$ 220,000.00	$ 374,000.00	$ 1,452,000.00
ENHANCEMENT6	DVRS trunking-to-conventional repeater	$ 20,000.00	83	$ 1,660,000.00	28	$ 560,000.00	-55						
ENHANCEMENT7	bi-directional amplifier	$ 35,000.00	1	$ 35,000.00	2	$ 70,000.00	1		1			$ 35,000.00	
SUBTOTAL				**$ 3,024,500.00**		**$ 2,676,000.00**		**10**	**18**	**66**	**$ 220,000.00**	**$ 409,000.00**	**$ 1,452,000.00**
SYSTEM INFRASTRUCTURE													
VMRS	digital radio system infrastructure - Vancouver Marine Radio System	$ 2,500,000.00	1	$ 2,500,000.00	1	$ 2,500,000.00	0						
VMRS	add trunking system broadcast sites VMRS to encompass and serve 6 Pac Hwy land border crossings	$ 350,000.00	0	$ -	6	$ 2,100,000.00	6			6			$ 2,100,000.00
PRRS	digital radio system infrastructure - Prince Rupert Radio System	$ 400,000.00	1	$ 400,000.00	1	$ 400,000.00	0						
RADIO TOWERS	tower/shelter and other infrastructure to support coverage enhancement in very remote locations	$ 100,000.00	4	$ 400,000.00	10	$ 1,000,000.00	6	4	2		$ 400,000.00	$ 200,000.00	
SUBTOTAL				**$ 3,300,000.00**		**$ 6,000,000.00**		**4**	**2**	**6**	**$ 400,000.00**	**$ 200,000.00**	**$ 2,100,000.00**
ENCRYPTION KEYLOADERS													
KEYLOADER	required to manage encryption keys on digital encrypted radio networks	$ 3,500.00	26	$ 91,000.00	35	$ 122,500.00	9	6	3		$ 21,000.00	$ 10,500.00	
SUBTOTAL				**$ 91,000.00**		**$ 122,500.00**		**6**	**3**	**6**	**$ 21,000.00**	**$ 10,500.00**	
	CURRENT (non-depreciated) ASSET VALUE			**$ 30,924,000.00**									
	UPDATED ASSET VALUE					**$ 49,309,500.00**		**TOTAL HW investment by year**			**$ 7,781,000.00**	**$ 10,399,500.00**	**$ 13,128,000.00**
								Average HW replacement costs assuming 7 yr re-cap cycle					**$ 4,500,250.00**

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Radio Program Maintenance Costs (Vote 1)	FY 2017-2018
Airtime	$ 3,600,000.00
Maintenance - Non Salary (ongoing est 5% of total asset value)	$ 820,000.00
Maintenance - Salary	$ 472,760.02
Employee training	
Other Telecom Services (backhaul, phone etc)	$ 180,000.00
Equipment Acquisition and Replacement	$ 3,400,000.00
TOTAL VOTE 1 non-salary	**$ 8,000,000.00**
TOTAL VOTE 1 salary	**$ 472,760.02**
TOTAL VOTE 1	**$ 8,472,760.02**

applied rate	RADIO REPLACEMENT PLAN - TOTAL VOTE 1 - RECURRING AND ONGOING EXPENSES				
	YR1	YR2	YR3	continuing	NOTES
3%	$ 4,145,400.00	$ 5,539,782.00	$ 6,499,475.46	$ 6,499,475.46	airtime grows at 3% plus new subscription costs. Subscription on GOLD includes almost all of QC on RENIR whereas SILVER pursued less expensive alternatives
5%	$ 650,000.00	$ 792,000.00	$ 865,000.00	$ 2,465,475.00	Maintenance costs will be lower during the investment years as we are not renewing or extending existing maintenance contracts on old equipment, and costs should decrease as more sites are fully decomissioned. However, maintenance costs will still increase as existing equipment ages, and CBSA owned infrastructure is subscribed to managed maintenance and support plans provided by OEM or other contracted support. The estimated 5% maintenance estimates is thus only added to "ongoing" years and not yr 1-3 because these maintenance services will not be required in re-cap period when the infrastructure is being renewed.
				$ 955,000.00	Incremental preventative and corrective maintenance on new sites added to expand VMRS capability, as well as system upgrade agreement which allows us to maintain the system software and infrastructure to be no more than 1 year off of the most current versions. This option was not selected when the VMRS system was first commissioned and has resulted in an infrastructure which the OEM will no longer support and is now forced into an entire infrastructure overhaul. The total infrastructure that this maintenance line item is supporting is >$4M in value and ~$6M of CBSA investment.
1.50%	$ 649,851.42	$ 827,049.19	$ 919,354.93	$ 1,181,770.25	salary was A-base only in FY 2017-18, but salaries for incremental staff increases are included in radio replacement strategy
	$ 30,000.00	$ 40,000.00	$ 45,000.00	$ 50,000.00	Increase is due to increase in number of employees from current year (4 FTE) to year 1 (7 FTE) up to year 3 (14 FTE total), as well as escalating demands for keeping with up to date technologies
3%	$ 320,400.00	$ 600,012.00	$ 1,078,012.36	$ 1,078,012.36	As CBSA intent is to move towards greater interoperability and interconnection vs standalone CBSA infrastructure, some sites will have HW that requires internet and/or phone services for communications backhaul from remote POE to more centralized communication centre locations. Telecom costs grow at 3% plus new subscription costs.
	$ -	$ -	$ -	$ -	Cyclical HW replacement was Vote 1 in Radio Controlled Fund for 2017-18, but in proposed radio sustainability planwill be requested in Vote 5, therefore zero in this table
	$ 5,145,800.00	**$ 6,971,794.00**	**$ 8,487,487.82**	**$ 11,047,962.82**	
	$ 649,851.42	**$ 827,049.19**	**$ 919,354.93**	**$ 1,181,770.25**	
	$ 5,795,651.42	**$ 7,798,843.19**	**$ 9,406,842.75**	**$ 12,229,733.07**	

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Programme de radiocommunication de l'ASFC et Stratégie nationale en matière de radiocommunication 2018-2028

Document d'information pour le président
Octobre 2017

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Objectifs

- Donner un aperçu du programme de radiocommunication de l'ASFC
- Expliquer les difficultés et les problèmes opérationnels inhérents au programme actuel de radiocommunication
- Présenter la stratégie nationale proposée en matière de radiocommunication
- Faire approuver une façon de procéder : options à envisager

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Contexte

- L'ASFC fournit une capacité de conversation à bouton de microphone (PTT) permettant la communication vocale bidirectionnelle aux employés de la Direction générale des opérations aux points d'entrée (PE) et de l'Exécution de la loi dans les bureaux intérieurs.
- Le « système » de radiocommunication de l'ASFC est **une mosaïque** d'anciennes technologies analogiques et de plus récentes technologies sur plateforme numérique ayant une multitude de différents cycles de vie, capacités et vulnérabilités à l'échelle du pays.
- Les niveaux de ressources humaines et financières du programme actuel de radiocommunication **ne peuvent pas suivre le rythme** de l'évolution de la technologie et des exigences en matière d'interopérabilité des partenaires en sécurité lors d'opérations conjointes et d'interventions.
    - 60 % de l'équipement de radiocommunication actuel de l'ASFC est basé sur la technologie analogue désuète qui n'est pas interopérable avec l'équipement utilisé par d'autres premiers intervenants.
    - Plus de 10 % de l'équipement de radiocommunication de l'ASFC fait usage de services commerciaux qui ne sont pas sécuritaires, robustes ou interopérables avec d'autres organismes de premiers intervenants.
- Une **stratégie nationale en matière de radiocommunication** a été élaborée en 2015-2016 pour répondre aux défis actuels et déterminer une **voie à suivre durable**.

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Objectifs de l'ASFC en matière de radiocommunication

QUOI

- Améliorer l'efficacité opérationnelle des agents de première ligne de l'ASFC en leur donnant accès à des outils numériques fiables de communication bidirectionnelle.
- Appuyer immédiatement l'interopérabilité avec les premiers intervenants partenaires au Canada et aux États-Unis, et poursuivre une voie de migration vers un réseau à large bande futur dédié à la sécurité publique.

COMMENT

- Adhérer à des services de radiocommunication conçus pour la sécurité publique et l'utilisation gouvernementale pour les infrastructures régionales, provinciales et municipales.
  - Dans les endroits où les services d'abonnement ne sont pas pratiques ou ne sont pas offerts, choisir des solutions technologiques qui permettent l'interopérabilité entre l'ASFC et les partenaires locaux.
  - La GRC a adopté une approche semblable, c'est-à-dire qu'elle s'adapte au contexte de radiocommunication de chaque région et n'utilise donc pas un système national unique de radiocommunication pour toutes ses divisions opérationnelles.
- Participer aux groupes de travail interprovinciaux et Canada–É.-U. pour développer une sensibilisation réciproque sur le plan des besoins des organisations partenaires en matière d'interopérabilité, mettre en œuvre des solutions technologiques existantes qui amélioreront immédiatement l'interopérabilité et exécuter cette capacité d'interopérabilité.
- Soutenir les efforts du ministère de la Défense nationale (MDN), d'Innovation, Sciences et Développement économique (ISDE) Canada et de Sécurité publique (SP) Canada en vue d'établir un réseau canadien à large bande dédié à la sécurité publique, et de s'assurer que l'ASFC est en mesure d'en exploiter les avantages en matière d'interopérabilité.

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Options de financement pour assurer la viabilité

B. Réduire au minimum (« Argent ») : Mise à jour la moins dispendieuse et passage à la technologie numérique; les radios ne seront pas toutes de niveau adéquat pour assurer la sécurité publique (système P25).

- La plupart des radios de l'ASFC seront dotées d'une technologie numérique et chiffrée au cours de 3 à 5 prochaines années (une amélioration qui passera de 30 % de l'équipement actuel à près de 90 % de l'équipement).
- Suppose une période de mise à niveau de 10 ans, 5 % en coûts d'entretien, un achat d'équipement à faible prix de capacité inférieure dans la mesure du possible.
- Certaines équipes en Colombie-Britannique, au Québec et dans le Nord de l'Ontario auront des systèmes non interopérables en raison du manque de services d'abonnement adéquats ou abordables.
- Financement progressif nécessaire du programme de radiocommunication *en plus* du financement de base supposé de 6,6 millions $: 3,2 millions $ (2018-2019), 4,7 millions $ (2019-2020), 5,8 millions $ (2020-2021) et 5,9 millions $ (en cours). Total de 12,5 millions $ en cours; cinq ETP (équivalent temps plein) de manière progressive.
- **Cette option nécessite un total de 2,1 millions $ au titre du crédit 5 (dépenses non salariales), 29,9 millions $ au titre du crédit 1 (dépenses non salariales) et 2,4 millions $ au titre du crédit 1 (salaire) sur les trois premières années pour reconstituer le capital de l'ancien équipement et maintenir le programme de radiocommunication; 0,5 million $ au titre du crédit 5 (dépenses non salariales), 10,8 millions $ au titre du crédit 1 (dépenses non salariales) et 1,2 million $ au titre du crédit 1 (salaires) ensuite par année pour maintenir le programme de radiocommunication.**
- **OPTION RECOMMANDÉE,** car elle est la plus abordable des options proposées.

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Mode de financement recommandé

B. Réduire au minimum : Fonds d'investissement exigés pour les trois prochaines années. Financement régulier exigé par la suite pour assurer la viabilité. Les montants moyens pour les années 4 à 10 sont affichés dans la dernière colonne.

COÛTS DU PROGRAMME DE RADIOCOMMUNICATION	Année 1	Année 2	Année 3	Années 4 à10 (en moyenne)
CRÉDIT 5 –immobilisations de remplacement (dépenses non salariales)	581 000 $	609 000 $	946 000 $	551 273 $
CRÉDIT 1 –remplacement d'équipement (dépenses non salariales)	4 241 000 $	4 437 500 $	3 852 000 $	3 123 880,33 $
CRÉDIT 1 –entretien (dépenses non salariales)	4 777 640 $	5 856 269,20 $	6 772 097,28 $	7 653 622,28 $
CRÉDIT 1 –entretien (salaires, y compris les services votés actuels)	649 851,42 $	827 049,19 $	919 354,93 $	1 181 770,25 $
TOTAL	10 249 491 $	11 729 818 $	12 489 452 $	12 510 545 $
ETP – DE FAÇON PROGRESSIVE	2	4	5	5

But 1 : Migrer l'équipement de la majorité des ASF vers les systèmes numériques et chiffrés à partir des anciens systèmes analogiques et augmenter les ressources humaines pour qu'elles atteignent un niveau viable.

But 2 : Donner l'accès à une infrastructure interreliée et interopérable avec une voie de migration vers la connectivité dotée d'un futur réseau à large bande dédié à la sécurité publique.

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Prochaines étapes :

Inclure la modernisation des radios bidirectionnelles dans le cadre du plan de viabilité sur 3 à 5 ans de l'ASFC.

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Annexe

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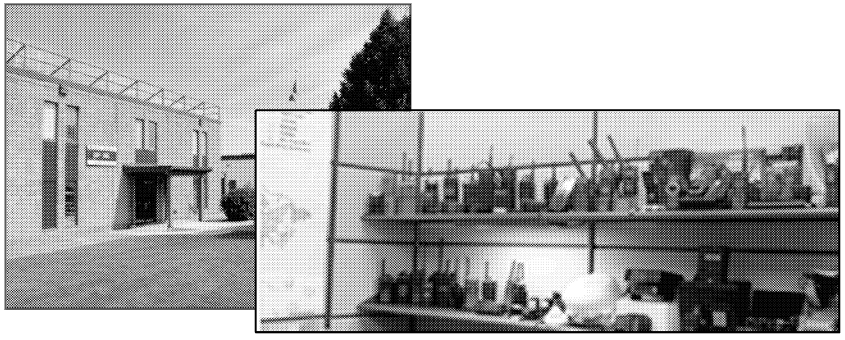
Programme de radiocommunication de l'ASFC

Groupe radio de la Direction des sciences et de l'ingénierie – Ottawa



Capacités :

- Plus de 8 700 radios déployées dans l'ensemble de l'ASFC.

- Plateforme de radiocommunication analogique (60 %) :
  - radio du Système d'alarme et de sécurité personnelle (SASP) de l'ASFC;
  - dans la plupart de nos postes frontaliers terrestres et dans certains aéroports.

- Plateformes numériques de radiocommunication (40 %) :
  - systèmes numériques de radiocommunication de l'ASFC;
  - systèmes de radiocommunication provinciaux, territoriaux et municipaux;
  - systèmes pour le secteur commercial;
  - communication satellite.

Rôle du Groupe radio :

- « S'assurer que les agents des bureaux locaux de l'ASFC aient un système de radiocommunication bidirectionnelle efficace et efficient qui les aide dans **l'exercice de leurs fonctions et favorise leur santé et leur sécurité** ».
- Effectif technique de quatre personnes, à Ottawa.
- L'autorité fonctionnelle en matière de radiocommunication de l'ASFC gère une gamme variée d'activités.
- Surtout axé sur les opérations de l'ASFC sur le terrain.

Services :

- Concevoir, élaborer, mettre en œuvre et fournir des solutions novatrices en matière de radiocommunication.
- Soutenir et entretenir l'équipement et les systèmes de radiocommunication déployés sur le terrain.
- Fournir de l'expertise en dépannage de systèmes et d'équipement de radiocommunication.
- Former le personnel de l'ASFC pour des systèmes de radiocommunication nouveaux et existants.
- Appuyer l'élaboration de procédures normales d'exploitation (PNE) à l'échelle régionale concernant les systèmes de radiocommunication bidirectionnelle.
- Fournir des services de conception et de l'expertise aux fins de la mise en œuvre de systèmes logés dans des édifices grâce à l'utilisation d'extensions de réseau, de répéteurs ou d'amplificateurs bidirectionnels.
- Fournir une expertise technique pour la mise en place (liaison) de passerelles Ethernet sans fil pour transmettre des données, la vidéo et la voix en temps réel à destination et en provenance de régions éloignées.

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Priorités stratégiques du programme national de radiocommunication

PRIORITÉS ET OBJECTIFS STRATÉGIQUES	
Priorité stratégique	**Objectif stratégique**
PRIORITÉ 1 Technologie moderne de radiocommunication	**Objectif 1.1 – Équipement, systèmes et accessoires de radiocommunication efficients et efficaces** **Objectif 1.2 – Amélioration de la couverture radio** **Objectif 1.3 – Interopérabilité en ce qui a trait aux partenaires internes et externes** **Objectif 1.4 – Utilisation de solutions de radiocommunication à l'appui (p. ex. centres de communication, localisateur GPS)**
PRIORITÉ 2 Effectifs résilients	**Objectif 2.1 – Accès amélioré au soutien pour les utilisateurs** **Objectif 2.2 – Formation et exercices sur le terrain** **Objectif 2.3 – PNE**
PRIORITÉ 3 Cadre financier et stratégique	**Objectif 3.1 – Plan d'investissement et de viabilité pour le programme radiocommunication** **Objectif 3.2 – Politiques à l'appui de la technologie de radiocommunication de pointe**

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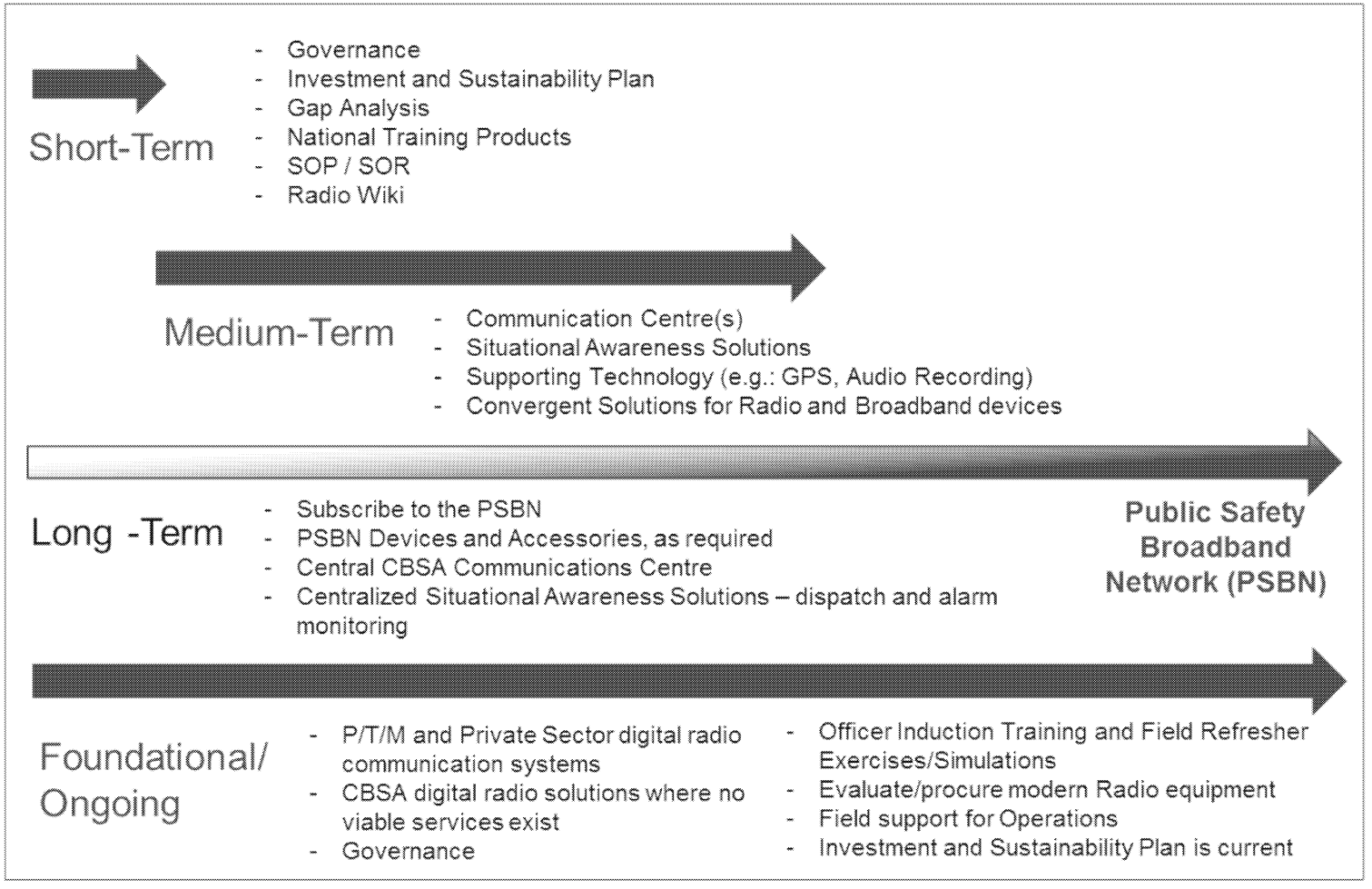
Radio Program Strategy Supporting Initiatives



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Consultation sur la stratégie du programme national de radiocommunication

- Questionnaire envoyé aux intervenants internes au sein des Opérations régionales pour obtenir de la rétroaction sur les questions clés liées à l'environnement de radiocommunication de l'ASFC.
  - Plus de 120 ASF de toutes les régions y ont répondu.

- Commentaires également reçus des directeurs généraux régionaux, du DG de la DSI et du VP de la DGIST.

- Commentaires reçus des membres du groupe de travail sur la radiocommunication (niveau de directeur au sein des Programmes, des Opérations, des RH et du Contrôle).

- Discussion avec les partenaires fédéraux, provinciaux et territoriaux sur leur stratégie de radiocommunication ainsi qu'avec les groupes de travail interprovinciaux et Canada–É.-U. pour atteindre une capacité future en matière d'interopérabilité de la radiocommunication.
  - La GRC est à la tête des activités Canada–É.-U. sur le plan de l'interopérabilité.

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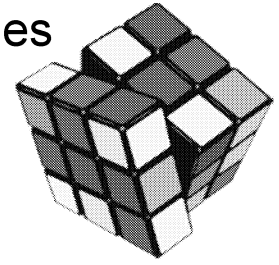
Difficultés liées au programme de radiocommunication

Difficultés
Problèmes
Challenges
Issues



- Le niveau actuel de financement ne permet pas l'exécution d'un programme de radiocommunication viable et moderne.
- « Mosaïque » variée à l'échelle nationale où la **gestion du cycle de vie est inégale** et la **migration vers les technologies numériques est extrêmement lente**.
- Grand nombre de radios sur systèmes analogiques désuets et non chiffrés qui sont susceptibles d'**espionnage**, **mauvaise, voire aucune, interopérabilité avec les partenaires en sécurité** et **soutien des fournisseurs à la baisse**.
- Groupe radio très petit (quatre techniciens responsables de l'ensemble du programme de radiocommunication) qui a **atteint ses limites** pour « garder les lumières allumées ».
- **Aucun soutien technique dans les régions** pour appuyer les opérations lors d'activités opérationnelles aux PE ou de l'Exécution de la loi dans les bureaux intérieurs en cas de problème.
- **L'Agence n'a pas la capacité d'élaborer une politique sur le programme,** d'optimiser la distribution au sein d'équipes/d'emplacements, de mettre à jour les PNE, d'établir des exigences opérationnelles précises ou de former les utilisateurs, ce qui entraîne **un usage non uniforme des actifs sur le terrain en matière de radiocommunication.**
- **Processus d'approvisionnement très long** pour renouveler le programme

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Carte de route de l'interopérabilité de la radiocommunication

Efficacité opérationnelle

But :
Améliorer l'efficacité opérationnelle de l'ASFC grâce à des technologies de communication numériques interopérables et sécuritaires avec les partenaires en sécurité publique au Canada et aux États-Unis.

Migration continue des utilisateurs de radio de l'ASFC aux réseaux de sécurité publique provinciaux ou municipaux comme l'Alberta First Responders Radio Communications System (AFRRCS), New Brunswick Trunk Mobile Radio (NBTMR), etc.

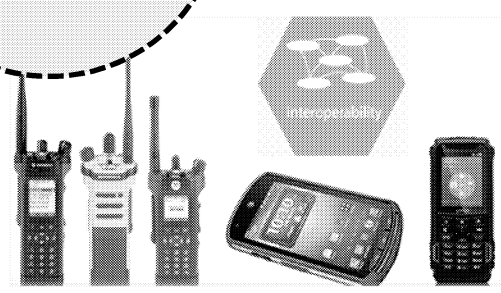
Ancienne technologie de radiocommunication de l'ASFC toujours utilisée dans la majorité des postes frontaliers terrestres et à certains aéroports.

Certaines équipes de l'Exécution de la loi et du Renseignement à certains aéroports (p. ex. YEG, YYC)

Niagara/ Fort Érié

Système de radiocommunication de l'ASFC de la région métropolitaine de Vancouver

Aéroport international Pearson (VCOM)



Ancienne plateforme analogique (radio SASP de l'ASFC, milieu des années 1990).

Système commercial de radiocommunication LTE (Bell)

Radio bidirectionnelle commerciale (Canquest)

P25 (normes ouvertes)

Abonnement aux réseaux de sécurité publique

Passerelles (lien avec réseau radio et cellulaire à large bande)

\+

Réseau LTE national, privé (futur réseau à large bande dédié à la sécurité publique)

Capacité en matière d'interopérabilité

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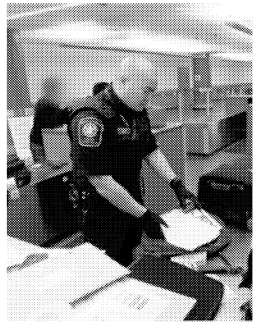
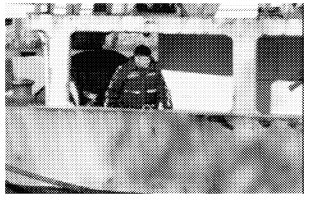
Intervenants

ASFC

- ASF – postes frontaliers, aéroports, points d'entrée maritimes et ferroviaires, mode postal.
- Agents d'exécution de la loi et du renseignement
- Le groupe de travail sur la radiocommunication de l'ASFC fournit de la surveillance et de la gouvernance pour plusieurs directions générales





Gouvernements fédéral, provinciaux, territoriaux et municipaux

- Protocoles d'entente (PE)
- Groupe de travail fédéral de la sécurité publique sur la radiocommunication, GRC, SP Canada.
- Services partagés Canada (SPC), Services publics et Approvisionnement Canada (SPAC), Recherche et développement pour la défense Canada – Centre des sciences pour la sécurité (CSS de RDDC)
- ISDE

NL FleetNet

Nova Scotia Trunked Mobile Radio System Network TMR 2

Prince Edward Island Canada

New Brunswick / Nouveau Brunswick Canada

RENIR

MTS Mobility FleetNet 800

Alberta Government

Yukon Government

Public Safety Canada

Canadian Safety and Security Program / Programme canadien de sûreté et de sécurité

Regional Municipality of Peel

Provincial Public Safety Telecommunications Network

SSC SPC

Innovation, Science and Economic Development Canada

Windsor

Ottawa

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Intervenants (suite)

Fournisseurs de services du secteur privé

- Systèmes radio commerciaux
- Systèmes de communication par satellite
- Contrats d'entretien
- Baux pour l'emplacement des antennes

Fournisseurs de matériel de radiocommunication

- XTS 3000 et XTS 2500
- Radios mobiles
- Radios fixes
- Accessoires radio
- Antennes
- Équipement de mesure

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Initiatives à l'appui de la stratégie du programme de radiocommunication

Court-terme :

- Gouvernance
- Plan d'investissement et de viabilité
- Analyse des lacunes
- Produits de formation nationale
- PNE/exigences opérationnelles précises
- Wiki radio

Moyen terme :

- Centres de communication
- Solutions de vue d'ensemble
- Technologie de soutien (p. ex. GPS, enregistrement audio)
- Solutions convergentes pour appareils de radiocommunication et à large bande

Long terme :

- S'abonner au réseau à large bande dédié à la sécurité publique
- Obtenir les appareils et accessoires connexes, au besoin
- Centre de communications central de l'ASFC
- Solutions de vue d'ensemble centralisées – centres de répartition et surveillance d'alarmes

Réseau à large bande dédié à la sécurité publique

De base/en cours

- Systèmes numériques privés de radiocommunication provinciaux, territoriaux et municipaux
- Solutions numériques de radiocommunication de l'ASFC là où il n'y a aucun service viable
- Gouvernance
- Formation de base des agents et exercices/simulations de rappel sur le terrain
- Évaluer/obtenir de l'équipement de radiocommunication moderne
- Soutien aux opérations sur le terrain
- Le plan d'investissement et de viabilité est actuel

Canada Border Services Agency
National Radio Strategy

2016-2021

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Version Control

Version #	Date	Changes
0.1	15/06/2015	Initial draft
0.2	17/07/2015	Comments from the National Radio Strategy Questionnaire circulated to the Regions (responses from BSOs)
0.3	07/09/2015	Comments from ISTB S&E DG
0.4	09/10/2015	Comments from ISTB VP
0.5	05/11/2015	Comment from Regional DGs and Director Level Radio Communication Working Group Members
0.6	07/02/2016	Comments from ISTB S&E DG
0.7	14/03/2016	Executive summary and heat maps completed
0.8	06/06/2016	Annex on Acronyms added
Final	07/06/2016	Final

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Executive Summary

Radio communication plays a crucial role in border management. Having access to modern radio communication equipment and systems allows the Agency to secure the border more effectively and efficiently, and at the same time, ensures the safety of Canadians and CBSA Officers.

When developing the National Radio Strategy, consultations were undertaken with Regional Officers and Management, including RDGs, as well as Headquarters Management (Annex G). Information received from those consulted (Annex A) was paramount in determining priority areas and in setting the direction for the CBSA's Radio Program.

This CBSA's National Radio Strategy focuses on three pillars:

Pillar 1: Modern Radio Communication Technology

Providing reliable digital encrypted and interoperable radio communication, which supports Officers in meeting their border management obligations and ensures their health and safety.

Pillar 2: Resilient Workforce

Providing our Officers access to on-going support, training and standardized operational procedures for radio communication.

Pillar 3: Financial and Policy Framework

A sufficient and sustainable investment plan for the Radio Program, as well as policies that support latest radio technology.

This National Radio Strategy concludes that the CBSA must continue to tactically focus on partnering with municipalities, provinces, and territorial governments, as well as Public Safety organizations to ensure Officers utilize digital encrypted radio communication. Alternatively, the CBSA will design, develop and operate its own digital encrypted systems.

To implement the CBSA's National Radio Strategy, significant investments (beyond existing budgets) will be required to establish advanced radio communication capabilities and to ensure their ongoing sustainability. An initial investment of $13.7 million in the next three years would be needed to migrate officers from analog to digital radio communication systems.

The upcoming 700 MHz Public Safety Broadband Network will also be a key radio solution for the Agency. Moving forward, the CBSA will moreover have to assess what role radio communication will play in other Agency's Strategies (e.g. Mobility Strategy).

Current State of Public Safety Radio Communication

Commercial wireless communication has evolved exponentially in the past decade. Consumers are asking to access information and data wirelessly anywhere, anytime using world-leading technologies. Unfortunately, public safety radio communication has not evolved as quickly.

In *Realizing the Future of Public Safety Communication*, the United States Department of Homeland Security states:

"The evolution of wireless data communications driven by commercial providers has led to on-demand access to information, data, and applications for consumers worldwide; however, the expansion of available data services has largely bypassed emergency responders."

With limited funding, the life cycle of public safety radio communication equipment and systems can be up to 10 times longer than the life cycle of consumer products.

Furthermore, with the global market of first responder equipment being small in comparison to consumer products, manufacturers are not aggressively investing in their public safety radio communication portfolio.

The main goal of public safety radio communication is to provide ***critical voice communication*** continuously during large-scale emergencies and disaster relief. Radio communication is provided to first responders through dedicated narrowband Land Mobile Radio (LMR) networks. Public safety organizations are currently upgrading their analog narrowband radio networks to digital encrypted radio systems with mutual aid channels (interoperability channels).

In recent years, public safety organizations are using broadband data solutions through commercial networks; however, for ***non-mission critical use*** since these systems are the first ones that become unusable during large-scale emergencies and disaster events.

Having access to a dedicated public safety broadband network combined with existing narrowband LMR will then open the door to new mission critical applications, such as enabling the use of wearables, providing a means for real-time video transmission and sharing of large data files between first responders and other public safety organizations.

With no defined timeline when public safety broadband networks will be made available, public safety organizations will continue to invest in their narrowband LMR systems.

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Background

In 2014, Ernst & Young (EY) conducted an independent review of the Information, Science and Technology Branch's Science and Engineering Program to validate its relevance and importance within the Agency's current context, as well as its modernization agenda. EY provided numerous recommendations, one of which was specifically aimed for the Radio Program.

Recommendation

The Science and Engineering Directorate should finalize a strategic plan for the Radio Program and continue to explore options to co-deliver services with partners to leverage potential additional cost efficiencies.

The Science and Engineering Directorate, in collaboration with Programs, Operations and HR Branches, therefore lead the development of this National Radio Strategy (the Strategy) to ensure the Radio Program would be in line with the modernization agenda of the Agency, and also with other public safety organizations.

Laying the Ground Work

In mid-late 2015, a consultation exercise was launched to determine how the Radio Program could be transformed so it could meet the Agency's radio communication needs within the next 5 years.

A questionnaire (Annex A) was sent to internal stakeholders to obtain feedback on key questions related to the CBSA's radio landscape. Questions were raised on fundamental aspects related to the role/relevancy, vision and transformation of radio communication within the Agency. Formal interviews were also conducted to further establish a clear direction for the future.

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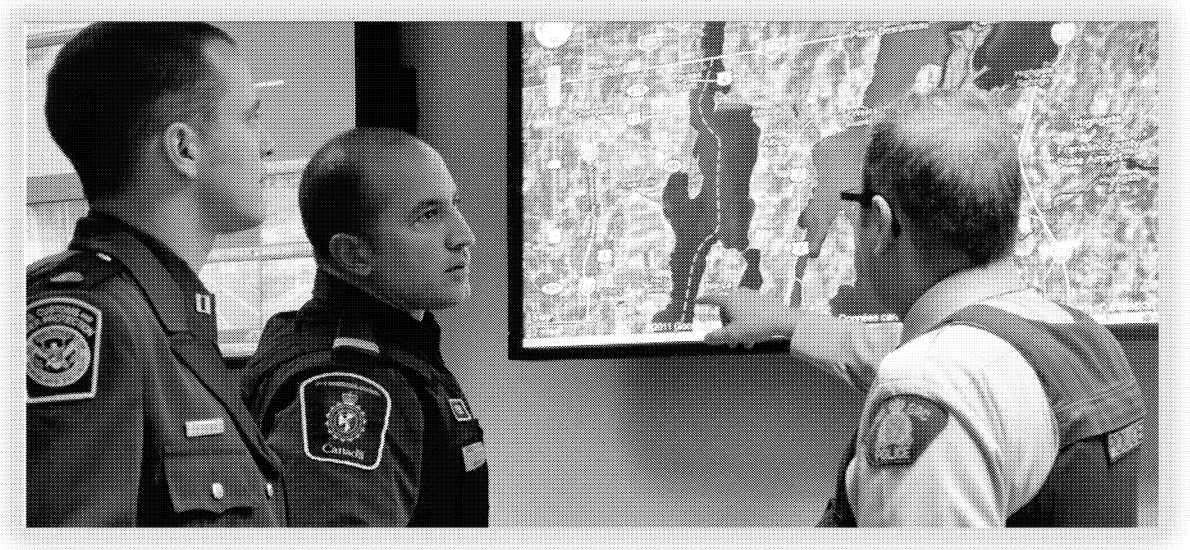
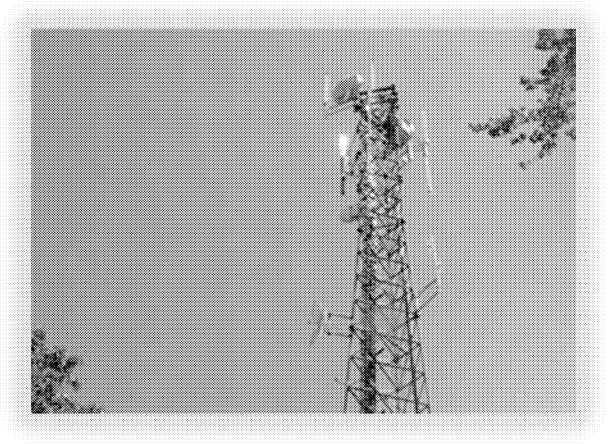


Radio Communication Strategy

The CBSA's Border Modernization initiative is key to keep pace with changing times, emerging threats, new trade and travel trends, as well as increasing demands for expedited clearance. This includes using the latest tools and technology to enable the CBSA to meet these challenges. One of these key tools is radio communication technology.



Having access to modern radio communication equipment and systems allows the Agency to secure our border more effectively and efficiently, and at the same time ensures the safety of our officers.

Access to digital encrypted interoperable radio equipment and systems is key during day to day operations, but especially during emergency and disaster relief events. Each public safety organization has a specific role to play. Instant radio communication is essential to prevent, protect against, respond to and recover from major disasters and other emergencies. It is therefore crucial that we keep pace with our public safety partners so we can communicate with them.

This Strategy ensures that our officers will have access to digital encrypted, reliable radio communication solutions to ensure the sharing of information (voice and data) in a secure manner.

Radios terminals, accessories, radio coverage, as well as internal and external interoperability with our partners will be based on the requirements of individual groups within the CBSA.

In addition, officers will be highly trained in radio communication, and will have technical support for issues related to radios.

Standard Operating Procedures will be made available to ensure our officers are able to efficiently and effectively utilize their radio communication devices when performing their duties and during emergency and disasters events.

Significant investments, beyond existing budgets, will be needed to establish advanced radio communication capabilities and to ensure their ongoing sustainability. Policies must be put in place to support the use of latest technological trends in public safety radio communication.

This Strategy has a direct impact on the Agency's key priorities, specifically securing the border strategically by providing officers with a means of communicating protected information in real time, thereby improving border security, and strengthening organizational resilience by enabling a highly trained workforce with the necessary tools to perform their duties.

Strategic Pillars

The National Radio Strategy is organized into three strategic pillars: a modern radio communication technology, a resilient workforce, and a financial and policy framework. Within each pillar, the key objectives provide a framework for the initiatives that must be completed in order for the Strategy to be fully implemented.

The Director-level Radio Communication Working Group will provide the governance structure for achieving the goals set out in this Strategy. This Working Group will be expanded to include regional representatives. The Agency's Border Resources Management Working Group, a new DG-level initiative starting in April 2016, will be the steering committee where radio files will be discussed.

Engaging internal and external stakeholders such Shared Services Canada (SCC), Public Works and Government Services Canada (PWGSC), Industry Canada, Public Safety Canada, other federal, territorial and municipal public safety partners, as well as the private sector will be required to ensure a successful outcome.

TABLE 2. STRATEGIC PILLARS AND OBJECTIVES

Strategic Pillar	Objective
PILLAR 1 Modern Radio Communication Technology	Objective 1.1 – Efficient and Effective Radio Equipment, Systems and Accessories Objective 1.2 – Enhancement of Radio Coverage Objective 1.3 – Interoperability with Internal and External Partners Objective 1.4 – Use of Supporting Radio Solutions (e.g. communication centers, GPS locator, etc.)
PILLAR 2 Resilient Workforce	Objective 2.1 – Access to Support Objective 2.2 – Training and Exercises Objective 2.3 – Standard Operating Procedures (SOPs)
PILLAR 3 Financial and Policy Framework	Objective 3.1 –Investment and Sustainability Plan for the Radio Program Objective 3.2 –Policies to Support Latest Radio Technology

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Pillar 1: Modern Radio Communication Technology

Pillar 1 of the Strategy is about providing state of the art radio communication technology to support officers when performing their duties, and also to enhance their health and safety. Officers who responded to the national radio strategy questionnaire highlighted the vital role radios play in their work. It was one of the most important tools an officer carries on him or her since it ensures immediate communication with their colleagues and management.

"It is my life line. This item can keep me alive. It allows me to hear important information being passed on by my teammates. Next to my Duty Firearm this is my most important piece of equipment I have."

Currently, over 60% of user terminal devices deployed throughout the Agency are still operating on an analog radio communication system. The Agency must have access to reliable digital encrypted radio communication systems which enable officers to communicate sensitive information between themselves. These digital encrypted systems can be made available by either building our own radio infrastructure or by subscribing to provincial, territorial and municipal public safety digital radio communication systems, depending on which one is more financially viable. The cost of public safety digital communication is, unfortunately, higher compared to analog communication. A digital public safety grade radio terminal is five times more expensive than an analog radio, and includes airtime fees when subscribing to other public safety radio systems.

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This pillar also includes the need to provide user terminals and accessories that meet our officers' requirements. With radio terminals in the range of a few thousand dollars, the number of radios accessible to officers will strategically be determined on the number of officers on duty and on the availability of funds (Pillar 3).

Numerous officers stated the necessity for lighter and smaller radios. Longer battery life and accessories, such as ear pieces were also deemed important for officers.

During the procurement process, the selection of public safety grade radios will take into account the aforementioned requirements. However, the choice of smaller and lighter radios cannot impact the reliability of radio communication capabilities. Public safety antenna systems are scarcely placed in comparison to cellular antenna systems due to the cost associated with building towers. To be able to connect to these public safety antennas, user terminals must operate at a higher power level, therefore requiring devices with a larger form factor and battery; hence increasing the size and weight.

The Agency will continue to discuss with vendors upcoming trends and advancement in user terminals and accessories. Concurrently, we will continue to focus on partnering with other federal public safety departments and agencies to establish procurement vehicles for the purchase of radio equipment as a way to ensure an economy of scale. The Federal Public Safety Radio Communication Working Group, chaired by the Royal Canadian Mounted Police (RCMP), will be the forum to bring forward common radio communication issues.

Access to wide-area radio communication coverage is essential for certain officers, such as Enforcement and Intelligence officers, due to the nature of the work they perform. When the public safety radio infrastructure, owned by the CBSA or our partners, cannot provide such coverage, the Agency will look at commercial radio systems, as well as satellite communication. Commercial systems can, however, become congested and unusable during major emergency and disaster events, one of the main disadvantages for public safety organizations.

In 2011, Public Safety Canada published the *Communication Interoperability Strategy for Canada (CISC)*. This document highlighted the key national priorities to enhance governance, planning, technology, training and exercise to promote interoperable voice and data communication. In the CSIC document, it states:

"Emergency response agencies, at all levels of government, must have seamless interoperable communications to manage response, establish command and coordination, maintain situational awareness and function within a common operating framework. This will lead to improved response capabilities and provide a more comprehensive approach to disaster management, which will lead to increased safety for all Canadians."

Recent events, such as the October 22, 2014 shooting at Parliament Hill, have demonstrated the importance of radio communication interoperability between first responders.

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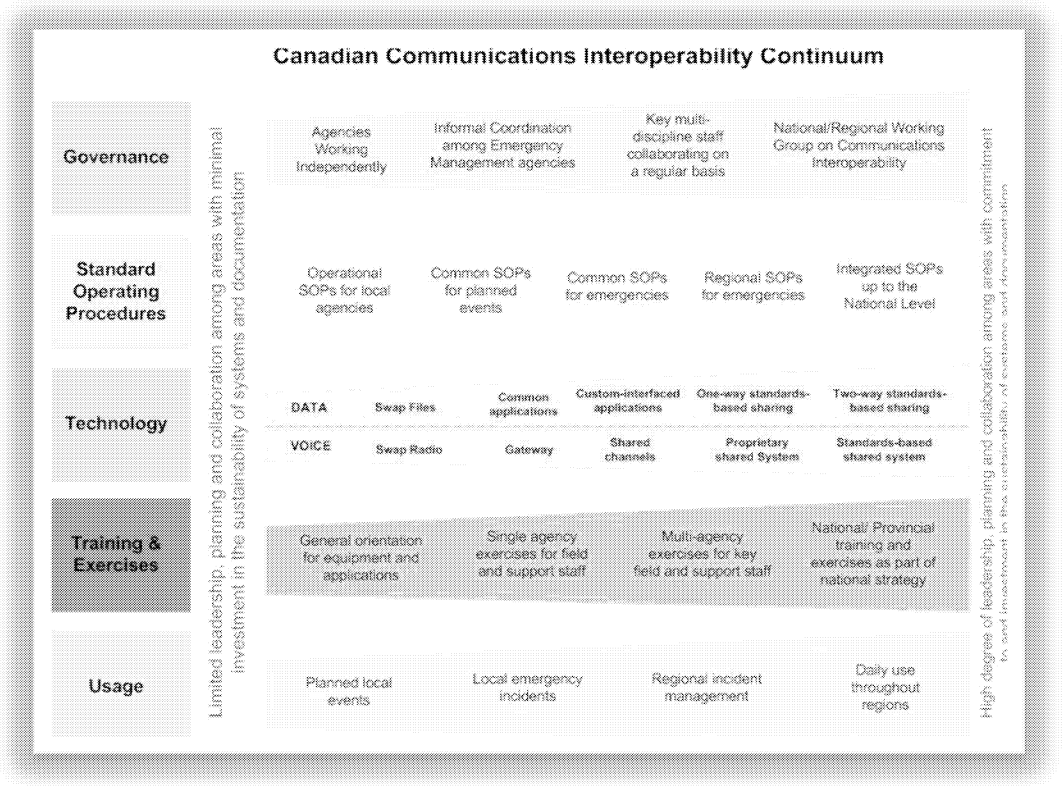

The CISC also provided a Canadian Communications Interoperability Continuum for an organization to measure their level of leadership, planning and collaboration amongst the 5 key national priorities. The CBSA is currently located in the left side of the continuum. The goal of this National Radio Strategy is to move the Agency towards the right side of the continuum.

In response to the questionnaire, interoperability was deemed extremely important by respondents. For instance, interoperability between Ports of Entry, CBSA teams, public safety partners (e.g., the RCMP, local police and emergency medical services), as well as US counterparts was deemed crucial by most officers, especially during emergency situations.

Subscribing to provincial, territorial and municipal public safety radio communication systems can allow the Agency to have interoperability channels with other public safety organizations, hence the reason why we will first focus on subscribing to these systems.

Vendors are starting to provide solutions (i.e., Gateways) to link different radio systems as a means to provide interoperability. For instance, smartphone devices with push to talk capability, operating on a broadband cellular network, can now communicate with land mobile radios operating on a different public safety radio system via a Gateway. Corporate applications could be accessible on these smartphones, therefore enabling an all-in-one device.

In the future, with the unified convergence of technology and systems, gateways will not be required. User equipment will have integrated chip sets enabling the device to connect to both LMR and broadband networks (e.g. private Long Term Evolution (LTE) network, commercial LTE

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and Wi-Fi network). When coverage from the public safety LMR network is not available, the radio will be able to connect to an LTE network or Wi-Fi network.

With the Government of Canada announcing a total of 20 MHz of spectrum in the 700 MHz band for the creation of a Public Safety Broadband Network (PSBN), it will not only allow interoperability between our Ports of Entry across different regions, but also between our federal, provincial, territorial and municipal public safety partner.

The United States is in the process of building their national public safety broadband network, commonly known as FirstNet based on LTE technology. The Canadian PSBN, using similar technology as FirstNet, will allow both systems to be interconnected to provide cross-border communication.

The PSBN will support voice communication; however, the main purpose of this network is to provide a means to deliver mission-critical broadband applications. Examples of such applications that could be used by the CBSA are connecting sensors in the field, enabling real-time video transmission, sharing of large data files internally or with our partners during joint operations, providing a means for integrating a central communication center, as well as situational awareness solutions. Public safety user terminal devices expected on this network will be smartphones, dongles, laptops, tablets and other specialized devices.

Nevertheless, in the initial phase of the implementation of the PSBN, it is anticipated that public safety organizations will continue to use their current LMR for mission critical voice communication.

The Agency will continue discussions with Public Safety Canada to understand the time lines associated with building this national wireless broadband network.

In the meantime, the Agency could leverage the use of the Border Technology Network (BTN) when it becomes available at different Ports of Entry for certain radio communication applications. Furthermore, with Shared Services Canada in the process of deploying secure Wi-Fi hot-spots, it could be utilized for non-critical radio applications.

Having access to supporting radio solutions, such as communication centers, GPS locators and audio recording, can provide a means of increasing the safety of our officers during field work.

From a technology standpoint, these support solutions can be made available if financial investment, legal considerations and policies (Pillar 3) are in place to promote the use of these solutions.

In order to ensure the deployment of consistent and appropriate radio communication technology identified in this Pillar, Standard Operating Requirements will need to be established by Programs or Operations Branch for each type of CBSA offices.

In conclusion, this Pillar will provide digital, encrypted and interoperable radio communication. It will provide reliable radio devices and equipment, accessories and supporting radio solutions that are based on the requirements of our officers.

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Pillar 1 – Modern Radio Communication Technology		
Objective	Highlights	Lead(s)
Objective 1.1 Efficient and Effective Radio Equipment, Systems and Accessories	▪ Migrate our officers currently on the CBSA legacy analog system (Personal Alarm Security System) to a CBSA, public safety or commercial digital encrypted system. ▪ Provide user terminals that are adapted for specific operational teams. ▪ Provide accessories (e.g., batteries with longer life, ear pieces) that meet the requirements of specific operational teams.	▪ ISTB's Science and Engineering Directorate ▪ Radio Communication Working Group
Objective 1.2 Enhancement of Radio Coverage	▪ Subscribe to provincial, territorial and municipal systems that provide wide-area coverage. ▪ Build CBSA radio networks to link Ports of Entry (POEs). ▪ Subscribe to commercial cellular radio systems or satellite communication when terrestrial public safety radio systems are not available. ▪ Subscribe to the National Public Safety Broadband Network (PSBN) when it becomes available to provide means of wider area coverage (long-term).	▪ ISTB's Science and Engineering Directorate ▪ Radio Communication Working Group
Objective 1.3 Interoperability with Internal and External Partners	▪ Provide Radio communication systems with wider area coverage, allowing neighbouring POEs or teams to have common talk groups for interoperability. ▪ Subscribe to provincial, territorial and municipal radio communication systems, allowing shared channels with our public safety partners. ▪ Implement gateway solutions, when feasible, to link different radio systems. ▪ Subscribe to the PSNB when it becomes available to provide the means of interoperability between CBSA operational groups, federal /provincial /territorial /municipal public safety partners, and US partners for cross-border communication.	▪ ISTB's Science and Engineering Directorate ▪ Radio Communication Working Group
Objective 1.4 Use of Supporting Radio Solutions (e.g.,	▪ Subscribe to the PSBN when it becomes available to provide the means of integrating a central communication center. In the meantime, provide access to CBSA	▪ ISTB's Science and Engineering Directorate ▪ Radio Communication

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Communication Centers, GPS Locator, etc.)	communication centers or discuss with public safety partners for supporting CBSA users through their communication centers. ▪ Activate GPS technology on radio terminals. ▪ Provide access to audio recording through our own systems or on partnering systems.	Working Group

Pillar 2: Resilient Workforce

Having access to efficient and effective radio communication technology is crucial for supporting officers when performing their duties. However, technology itself can only go so far. If the workforce does not have the support, training and procedures to maintain the competency and familiarity of these radio communication solutions, it can have a major impact on the outcome of a situation, especially during an emergency or disaster event.

Pillar 2 is about providing our officers access to on-going support, training and standardized operational procedures in radio communication. This pillar is consistent with key national priorities outlined in the CISC. It is also in line with the Agency's People Strategy since we need to ensure that the workforce have the skills and training to meet the challenges of the Agency's ever-changing dynamic and evolving environment.

The majority of officers who responded to the questionnaire stated that they do not have the proper local support or they did not know who to contact when faced with challenges with radio communication devices or systems. Currently, the Radio Group is a small team of four technical staff to manage the national radio program. Support for each region could be improved by having a dedicated team of subject matter experts in radio communication. This team would provide local support to officers, whether it is for training, radio inventory management, radio maintenance or repairs. This approach would be in line with other public safety organizations, such as the RCMP.

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A central generic email inbox will also be created to support officers if they have any questions or concerns. Maintenance contracts currently in place provide a 24/7 telephone support line. However, this information will be made more readily available to officers. The responses to the questionnaire also highlighted the need for training. Numerous officers stated that they never received formal training.

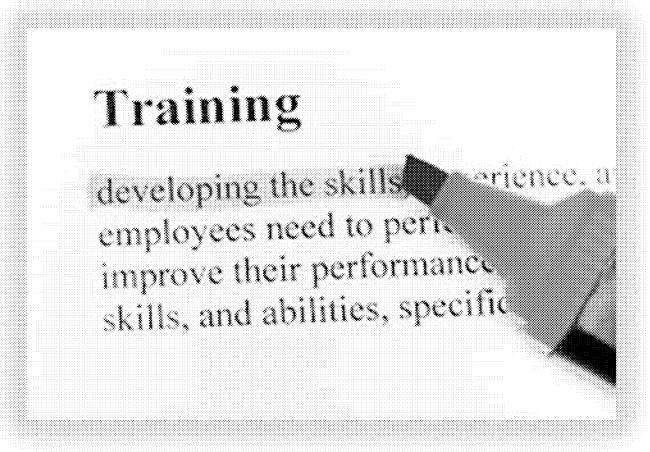
Considering the importance of radio communication, the CBSA Officer Induction Training Program should include formal training to new Officers. The training plan would include basic radio theory and the features and use of radio equipment and systems.

Officers also mentioned the lack of radio etiquette and standardized codes within the Agency. Training on radio etiquette would also be provided. Standardized national codes would also be made available since it could improve communication between officers. Officers transferred to other teams or Ports of Entry would not be required to relearn new codes. Discussion with public safety partners on harmonizing these codes would benefit all stakeholders, especially during joint operations and emergency situations.

Refresher courses could be given on a yearly basis. They would include hands on, classroom and/or on-line training. Training documents would readily be made available to officers. Frequently Asked Questions (FAQs) and one pager information sheets on different radio communication topics would be created and accessible on the CBSA intranet.

Exercises are also a very important way to maintain a high level of competency in radio communication. Exercises with internal and external partners are crucial, especially when ensuring we can adequately respond to emergency situations. The CBSA will look at participating in exercises not only internally, but also with public safety partners. The Radio Group will be present during these exercises to report on radio communication improvements required.

Standard Operating Procedures (SOPs) are important tools to promote consistent and efficient ways of using radio communication. Most respondents consulted stated they did not have access to SOPs or were unaware of them, but felt that they would be useful. The Agency will look at developing SOPs on radio communication.



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Pillar 2 – Resilient Workforce		
Objective	Highlights	Lead(s)
Objective 2.1 Access to Support	▪ Access to a dedicated team of subject matter experts in radio communication in each region. ▪ Access to central generic email inbox. ▪ Access to 24/7 telephone support line.	▪ Operations Branch ▪ ISTB's Science and Engineering Directorate
Objective 2.2 Training and Exercises	▪ Include radio communication training as part of the CBSA Officer Induction Program. ▪ Access to continuous training (class room and/or on-line training). ▪ Access to Frequently Asked Questions (FAQs), information sheets and training documentation. ▪ Implement standardized codes within the Agency (and with Public Safety Partners). ▪ Participate in internal and external exercises.	▪ Human Resources Branch ▪ Operations Branch ▪ Programs Branch ▪ ISTB's Science and Engineering Directorate
Objective 2.3 Standard Operating Procedures (SOPs)	▪ Develop SOPs on radio communication.	▪ Operations Branch

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Pillar 3: Financial and Policy Framework

Pillar 3 is key in the Strategy since it will directly dictate the implementation timeframe of different objectives within Pillars 1 and 2.

With over 60% of user terminals still operating on an analog radio communication system, there is a pressing need to invest in the radio program to migrate our officers onto modern digital encrypted radio communication systems. The CBSA owned analog system, Personal Alarm Security System (PASS), was initially put in place in the 1990s.

When subscribing to digital radio communication systems, the Agency is required not only to purchase user terminals[1], but also pay airtime cost[2]. While air time cost is nil for the CBSA owned systems, the maintenance contracts are well into the hundreds of thousands of dollars per year. To ensure systems remain current and modern, ever-greening is needed. There is, however, a significant cost associated to maintaining modern radio communication systems. The ever-greening of the CBSA's Vancouver Marine System over the next 10 years is estimated at $5.5 million dollars for example.

Available funds for digital migration projects are decreasing each year because of on-going costs. With a current budget of $5.7 million[3], on-going costs are estimated at $4.3 million. The remaining $1.4 million could allow the migration of approximately 270 analog user terminal radios to digital radios in 2015-2016.

[1] Cost of a digital Project 25 portable radio is approximately $5000. Desktop and mobile radios, including installation services, can be in the range of $6000.

[2] Airtime cost for subscribing to digital radio communication systems will vary from 0$ (e.g., Province of Alberta) to approximately $1000 per radio per month (e.g., Vancouver ECOMM system). Average airtime cost for digital public safety grade radio systems is apprximately $100 per radio per month.

[3] The amount of $5.7 million includes capital and non-capital O&M (2015-2016). It represents 0.35% of CBSA total annual funding.

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Furthermore, the Agency has been reducing the radio funds over the last few years, therefore decreasing the number of migration projects to take place. Between 2014-2015 and 2015-16, the radio funds were reduced by 5%.

Radio communication support solutions, such as communication centers and audio recording have been highlighted as means of increasing the safety of our officers during field work. The cost of communication center equipment to be implemented on each radio system can be in the range of $300-$400k. Audio recording equipment to be interconnected to each radio system is also approximately of $250k. The cost of yearly maintenance and regional human resources to staff these 24/7 communication centers must also be factored.

Support to local offices with dedicated regional teams of subject matter experts in radio communication will also require a continued financial investment from the Agency.

The Agency will need to establish an investment and sustainability plan. In order to deliver on the National Radio Strategy, additional staff is required within the technical, program and operational areas. In addition, significant investments are required to establish and maintain necessary radio systems, including joint digital and interoperable systems, equipment and air-time. The CBSA is currently lagging in comparison to radio investments made by other countries, as well as our federal, provincial and municipal partners. The table below provides an estimate of the investment and sustainability funds required above the current radio budget in the coming years to be able to accomplish the objectives identified in this Strategy.

Investment and sustainability funds required above the current radio budget

Year	2016-17	2017-18	2018-19	Ongoing
FTE	2	4	5	5
Salary	$170,000	$340,000	$425,000	$680,000
Non-Salary	$3,000,000	$4,373,000	$5,373,000	$6,373,000
Total	$3,170,000	$4,713,000	$5,798,000	$7,053,000

Policies also play an important role when implementing new and modern technology. Creating new or amending existing policies will be required to ensure modern radio technology can be deployed to our workforce. Furthermore, control and asset management policies, including security assessments, must be in place for radio technology. Programs should focus on establishing, communicating and maintaining science and engineering policies related to existing and emerging technologies. This will further support the CBSA's Border Modernization agenda.

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Pillar 3 – Financial and Policy Framework		
Objective	Highlights	Lead(s)
Objective 3.1 Investment and Sustainability Plan for the Radio Program	▪ Invest in capacity (workforce and capital) to implement the National Radio Strategy. ▪ Implement an investment and sustainability plan to provide access to modern radio communication technology and supporting radio solutions.	▪ Programs Branch ▪ Comptrollership Branch ▪ Operations Branch ▪ ISTB
Objective 3.2 Policies to Support Latest Radio Technology	▪ Ensure policies are in place to support the use of modern radio communication solutions within the Agency, including control and asset management policies.	▪ Programs Branch

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Annex A – Questionnaire

In early summer of 2015, a questionnaire was sent to internal stakeholders within Regional Operations to obtain feedback on key questions related to the CBSA's radio landscape. A total of 120 responses were received: 25 from the Atlantic Region, 41 from the Quebec Region, 11 from NOR, 14 from GTA, 10 from SOR, 1 combined response from the Prairies and finally, 18 from the Pacific Region.

Questionnaire

CBSA's National Radio Strategy: Transforming our radio landscape for the future

Background

The Information, Science and Technology Branch, Programs Branch and Operations Branch are in the process of establishing a National Radio Strategy. Among other things, the National Strategy will highlight the current role of Two-Way Radios within the CBSA, provide a vision for the future and develop a high level plan for the transformation of the Radio Program. The National Strategy will also be in line with the core values and priorities of the Agency.

As a first step in obtaining relevant information, this questionnaire has been prepared to obtain your feedback on key questions related to CBSA's radio landscape. Your feedback will help shape the discussion as we look to modernize Radio Communication within the Agency and position it to meet your needs far into the future.

Thank you for your engagement regarding the future of CBSA's radio landscape and CBSA's role in it as we aim to deliver a national radio strategy to guide us in the years to come.

Please submit this questionnaire by July 3, 2015
To: Josette Gallant, Manager, Technical Support and Integration

Name of Participant: _____
Branch: _____
Region: _____
Location: _____
Group: _____

The National Strategy is based on fundamental aspects related to the **ROLE/RELEVANCY**, **VISION** and **TRANSFORMATION** of CBSA's radio landscape.

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1. In your view, what role (relevancy) do radios play in assisting regional officers in performing their duties?

2. In the next 5 years, how can radio communication better support regional officers in performing their duties? Please provide concrete examples.

3. In recent years, Public Safety organizations have been working collaboratively and partnering on radio solutions/services. Should parts of the CBSA's radio program be managed by other Public Safety organization and/or private sector (i.e. communication infrastructure, equipment maintenance, procurement)?

Your answers to the following additional questions will further guide us in developing a roadmap for the Agency's radio program.

4. Do you see two-way radios as an important tool in your day-to-day work? How often do you use a radio (e.g. once a day) and for what reasons?

5. What are the challenges that you face in your day-to-day operation of two-way radio devices?

6. Do you feel that you have the support you need if you have questions or concerns with the radios you operate? How could we improve support on radio communication?

7. Do you feel you received proper training on radio communication?

8. Does your group have Standard Operating Procedures (SOPs) in place for radio communication? If YES, do you find them useful? If NO, do you feel they would be helpful?

9. Is it important for your day-to-day work to be able to communicate with other public safety organizations via radios? Please explain and provide the list of these public safety organizations.

10. Please add any comments on any other aspect(s) of radio communication you deem important.

The following constitutes a summary of the responses received by each region for the 9 questions on the National Radio Strategy Questionnaire.

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1. **In your view, what role (relevancy) do radios play in assisting regional officers in performing their duties?**

   The response from each region was unanimous. Radio communication was seen as one of the most important tools used by an officer to perform his/her duties. Radios are also crucial for the safety of our officers. Radio communication is vital to ensure officers are in constant communication with colleagues and management.

2. **In the next 5 years, how can radio communication better support regional officers in performing their duties? Please provide concrete examples.**

   The responses were very similar between regions. The elements mentioned were to have access to:

   - Smaller/less bulky radios
   - Interoperability with internal and external partners
   - Wide-area, in-building radio coverage
   - Accessories providing privacy (ear pieces)
   - Reliable radio system (free of interference)
   - Digital encrypted radio system
   - Batteries with longer life
   - Greater access to radios
   - Communication center
   - GPS locator
   - Audio recording
   - Training
   - Texting
   - Predetermined codes
   - Standard Operating Procedures

Table A.1: Top 5 elements for each region (1 being the highest priority)

Region	1	2	3	4	5
Atlantic	Smaller/less bulky radios	Interoperability	Wide-area radio coverage	Longer battery life	Ear pieces
Quebec	Wide-area radio coverage	Smaller/less bulky radios	Reliable system/ Equipment (free of interference)	Digital encrypted radio system	Interoperability
NOR	Smaller/less bulky radios	Interoperability	Wide-area radio /In-building coverage	Reliable system/ Equipment (free of interference)	Access to radio equipment/ infrastructure
GTA	Access to radios	GPS Locator	Central Communication Center	Interoperability	Radio alarm
SOR	Digital encrypted radio system	Wide-area radio coverage	Longer battery life	Training	Smaller/less bulky radios
Prairie	Smaller/less bulky	Wide-area radio	Central Communication	SOPs	Interoperability

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	radios	coverage	Center		
Pacific	Interoperability	Wide-area radio coverage	Digital encrypted radio system	Smaller/less bulky radios	Longer battery life
Note: Prairie region provided a summary of the responses they received from stakeholders. With only one response from Prairies, elements cannot be weighted.					

3. **In recent years, Public Safety organizations have been working collaboratively and partnering on radio solutions/services. Should parts of the CBSA's radio program be managed by other Public Safety organization and/or private sector (i.e. communication infrastructure, equipment maintenance, procurement)?**

   Currently, the Agency is subscribing to provincial, territorial and municipal public safety radio systems when financially viable. We will also subscribe to commercial systems, especially when wide-area coverage is required and no public safety radio system can provide such coverage. In these situations, the Agency is only required to procure user terminals and pay for airtime. CBSA digital radio systems are built when it is not viable to join an existing system. In this case, cost will be associated to user equipment, infrastructure and maintenance of the radio system.

   With the Agency's Radio Group limited to a few engineers and a technologist, national corrective and preventive maintenance contracts are in place for CBSA equipment and radio systems.

   A few procurement vehicles, such as Standing Officer Agreements are currently in place for the procurement of radio equipment. The Agency is currently working with other Federal Public Safety Departments and Agencies (via a Working Group chaired by the RCMP) on the possibility of multi-departmental contracts to benefit from an economy of scale.

   The majority of the respondents from each region were in favor of continuing the current approach. Some highlighted the requirement for the Radio Program to remain within the Agency, and not to be outsource to other federal public safety organizations or the private sector.

4. **Do you see two-way radios as an important tool in your day-to-day work? How often do you use a radio (e.g. once a day) and for what reasons?**

   The responses were very similar between regions. Radio communication was seen as a crucial tool used by officers when performing his/her duties. The radios were used daily, from a few times to hundreds of times. Most enforcement and inland officers stated that radios were not used on a daily basis. However, when they were performing field activities, such as search warrants and surveillance, it was crucial to be in continuous communication with colleagues. Radios were used constantly during these activities.

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5. **What are the challenges that you face in your day-to-day operation of two-way radio devices?**

The responses were again very similar between regions. The challenges faced were:

- Size/bulkiness of radios
- Lack of interoperability with internal and external partners
- Lack of wide-area, in-building radio coverage
- No access to accessories providing privacy (ear pieces)
- Lack of reliable system/equipment
- No access to digital encrypted radio system
- Short battery life
- Radios not accessible
- No communication center
- No GPS locator available
- Lack of training available
- Lack of radio etiquette
- No use of standardized codes
- Lengthy repair time
- Lack of active radio alarm
- Lack of support

Table A.2: Top 5 challenges for each region (1 being the highest priority)

Region	1	2	3	4	5
Atlantic	Size/bulkiness of radios	Short battery life	Lack of wide-area radio coverage	Lack of Interoperability	Lack of ear pieces
Quebec	Lack of reliable system/equipment	Size/bulkiness of radios	Lack of wide-area radio coverage	Short battery life	Lack of radio etiquette
NOR	Size/bulkiness of radios	Short battery life	Lack of reliable system/equipment	Lack of accessories/equipment	Lack of wide-area radio coverage
GTA	Lack of accessories/equipment	Lack of reliable system/ equipment	Lack of training available	No communication center	No GPS locator available
SOR	Lack of reliable system/equipment radio system	Short battery life	Size/bulkiness of radios	No access to digital encrypted radio system	Lack of wide-area radio coverage
Prairie	Lack of reliable system/equipment	Lack of training available (e.g. etiquette, use of radios)	Lack of wide-area radio coverage	Size/bulkiness of radios	Short battery life
Pacific	Lack of reliable system/equipment	Lack of wide-area radio coverage	Size/bulkiness of radios	Short battery life	Lack of radio etiquette

Note: Prairie region provided a summary of the responses they received from stakeholders. With only one response from Prairies, challenges cannot be weighted.

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6. **Do you feel that you have the support you need if you have questions or concerns with the radios you operate? How could we improve support on radio communication?**

   The majority of respondents felt that there was a need for better support in radio communication. Recommendations included:

   - Improve local support by creating teams of subject matter experts in radio communication
   - Provide additional training (e.g., on-line course, FAQs, information sheets)
   - Access to 24/7 support

7. **Do you feel you received proper training on radio communication?**

   Again, the majority of respondents across the Agency felt there was a lack of formal training on radio communication. Respondents that received formal training felt that refresher courses should be given from time to time. There should be basic training on radio communication and other topics, such as radio etiquette, standardized codes and radio maintenance. Exercises were also recommended as a way to train officers.

8. **Does your group have Standard Operating Procedures (SOPs) in place for radio communication? If YES, do you find them useful? If NO, do you feel they would be helpful?**

   The majority of respondents across the Agency stated that SOPs on radio communication were not available, or they were unaware if any existed. However, the majority felt SOPs would be useful. Respondents having access to SOPs felt additional ones should be provided to officers. Some recommended having SOPs similar to other Public Safety organizations since it would facilitate joint operations. Standardized SOPs could also ensure better preparedness during an emergency situation.

9. **Is it important for your day-to-day work to be able to communicate with other public safety organizations via radios? Please explain and provide the list of these public safety organizations.**

   The vast majority of respondents stated that radio interoperability with other public safety organization would especially be useful during emergency situations. It was less essential on regular working days (without majors incidents) to have radio interoperability with external partners. The list of Public Safety organizations varied depending on the location of the respondent. RCMP, local police departments, EMS, US Custom Border Patrols, port authorities, airport authorities and nearby Port of Entry (POEs) were the main entities identified by respondents.

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In addition to the comments received via the Questionnaire, the Regional Directors Generals also provided comments when reviewing the draft of the Strategy. These comments can be found below.

Atlantic Region

The Atlantic region strongly agrees that "the main goal of public safety radio communication is to provide **critical voice communication** continuously during large-scale emergencies and disaster relief." Therefore **interoperability** is our main concern to ensure critical communication not only within our agency but with our first responder partners.

Upon review of the three pillars of the strategy, it appears that our regional concerns will be addressed. To ensure this, we would like to have an Atlantic region Director participate in the "Director-level Radio Communication Working Group" mentioned in the document that will provide the governance structure for achieving the goals set out in this Strategy.

As stated in the National Radio Strategy document, the Atlantic region is currently exploring "options to co-deliver services with partners to leverage potential additional cost efficiencies". Led by NWNB Director John Dolimount, representatives from the CBSA in New Brunswick are working with our partners on a provincial radio platform. This new system will change how government stakeholders not only communicate within their respective departments, but will also provide them with the ability to communicate with many other departments and agencies within the province, and in some cases, Maritime wide. This initiative is in the consultation stage and we fully expect to have more information to share and work collaboratively with the CBSA National Radio Strategy team.

Attached is a media release concerning the New Brunswick radio initiative – outlining the fact that our partners recognize the need to upgrade and expand the current radio communication system in the province.

http://www2.gnb.ca/content/gnb/en/news/news_release.2015.06.0628.html

This type of collaboration will occur in other Atlantic region provinces as well.

Finally, the identification of training gaps on radio communication is supported by our region. In order to achieve the goals of the strategy, every officer within CBSA must be provided the same training and expectations at the beginning of their career. As stated, the best way to do this is to incorporate radio training in OITP. Only when we are talking the "same language" as our partners will true interoperability be achieved.

We are in complete agreement that this is a priority for the CBSA and support this initiative.

- The Draft is a very good document to guide the agency on voice communications. Data needs a little more work.
- NB will have to go through what CBSA NS has gone through with regards to governance, training, procurement and a needs assessment.

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- There need to be champions, arguably in each province and for each region on radio communication. SMEs in the region would be there to assist the districts with radio issues.
- With respect to training, the draft mentions starting radio training on recruit training, basic radios skills can be taught and then site specific when the officer is deployed to the field. On line training should only be for continuation training not the initial radio course. Hands-on training is absolutely a requirement with radios.
- Thought needs to be given to a communications centre/dispatch desk to support Officers in the field and Officer safety. The Draft indicates cost of equipment, however there is cost for staff that is not mentioned. This might be best done at a regional level, but the specific radio network construct in each province may require a different approach.
- Surveys of staff to keep them involved is important, and expectations may need to be managed. Radios that have been provided for NS units meet P25 requirements and are robust for the environment we work in.
- A guide for assessing the needs of a CBSA port, district and regional requirements must be developed.

Quebec Region

La région du Québec n'a que des commentaires positifs à formuler concernant l'ébauche de la Stratégie nationale en matière de radiocommunication. Nous avons procédé à une revue du document et nous sommes satisfaits que plusieurs recommandations que nous avions énoncées lorsque nous avons rempli le questionnaire ont été prises en considération. Nous croyons que les trois piliers stratégiques développés sont complets et permettront de répondre aux besoins actuels et futurs en matière de radiocommunication.

Nous énonçons toutefois certaines préoccupations quant aux coûts associés à l'implantation d'une telle stratégie, et ce compte tenu de la disponibilité des budgets, ainsi que la façon dont cette stratégie sera mise en œuvre. Il serait aussi souhaitable d'accorder une importance particulière au niveau de la formation, notamment en ce qui concerne l'utilisation de cet équipement, ainsi que les règles et directives s'y rattachant.

I would like to add that Inland services have some different needs than POE, but that can be figured out at a later stage.

I would like also a focus on simplicity of use. Yes we can train people to use systems, but in function, keeping simple is also important, and most Officers just want to be able to PTT (Push to Talk). When we use a cell phone, the user doesn't really mind how it works, they just want reception, and that the call goes through.

I am interested in the proposed Future system for CBSA. The only option we have is APCO 25 Phase 2 for interoperability. Anything else is such as DMR/NXDN etc are all proprietary and are more "short term" solutions.

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Digital radios as mentioned cost a lot more, and suppliers know that the Government is investing a lot of money to upgrade our old analog systems. We must choose carefully and not get flooded and buy bells and whistles that suppliers may attempt to upsell.

Northern Ontario Region

- There are concerns around the ability to achieve the elements in the strategy. This strategy is a key issue within the Agency that has been at the forefront of awareness dating back well before arming (10 yrs old now), identified in every officer safety review feeding into the BFOR studies and business risk/danger assessment reviews. The reality is that the current system requires a complete overhaul and modernization that will require a substantial budgetary allotment of a currently stretched budget.
- This document does a good job to outline the issue of cost impacts and the need for modernization of an already well outdated technology solution that we have in place today. The paragraph on page 2 rally sums up the picture when it talks about limited funding and the 10 times longer life cycle of products explains why we are and will likely always be dealing with less than adequate updated technology.
- It would be helpful to see a timeline added to this document with expected dates and goals included, this is a 5 year strategy with lots of identified strategic response but little firm commitments of where we are going and when we expect to be there.
- Although the key issues have been identified from the regions -it would have been helpful to have seen a separation in responses between PoE and E&I as the two business lines are very different and key areas to address would likely be different between the two operations (eg. External communications with partners would likely be priority one for EIOD as well as increased areas of coverage as work is outside the confines of a PoE). EIOD staff have responded from some regions but a separate area of response for EIOD would provide a better reflection of our radio communications issues.
- Like GCMS product we need to learn from our mistakes that when dealing with technology we need to be timely and 5 yr strategies that are 10 plus years late in response to a key identified risk area may result in a product that does not meet our current needs and places us years behind in technology. Budget needs to be established and prioritized early so that a quality product that has the capability of growing as technology does is established in a timely manner. The products exist and our partners have been advancing in this area of modern technology for years, we need to take advantage of this and realize our needs are very similar to those of our LE partners (digital encryption, interoperable, extensive coverage for marinas, airports, warehouses, EIOD business across the nation, links to centralized GPS/alarm response for radio holders).

Per Diane Keller's tasking due October 30th, Programs has had a review of the proposed strategy and we believe it is an excellent document and starts to move the Agency in the right direction in terms of addressing frontline operational gaps and speaking to longstanding critical emergency communications at POEs. The strategy covers the majority of what officers have recommended in previous simulated emergency exercises.

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There are some points of concern though that we believe should be considered:

1. While our POEs are static, our EIOD folks, specifically Inland Enforcement operations are mobile and can range from a high coverage areas to low coverage areas in terms of radio and cell phone coverage. Officers will be held to self-assess their radio needs based on the operational demand which they may not have the time to perform due to emerging circumstances. BB10 coverage is not sufficient throughout the province of Ontario due to roaming issues and coverage loss and could lead to the need to use multiple types of communication devices from one part of an operation to another causing confusion and communication breakdown placing officers at an even greater risk. We question how the points detailed in Pillar 1 on page 10 address these issues specifically in Objective 1.2.

2. Page 13 – Common Radio Protocols. This is a must not a "could." Common terms and codes are essential to all aspects of our operations whether you work at a highway POE, an airport or in EIOD. One of the primary failures during critical incidents is a breakdown in communication starting with common terminology and codes. Our Region (NOR) should have one unified terminology or set of codes as we could potentially send staff to other POEs or even other Districts to work and support other officers and disciplines as the situations demand.

3. BB10's should not be an absolute solution for communications for the Agency. With the login process and touchscreen there is room for error and if officers are wearing gloves, arresting someone, holding a wound, etc. how do they make a call for assistance without putting themselves in a greater position of danger?

4. The strategy also does not cover International Removals communications and should present a strategy to recognize this work and communications gap. This should maybe fall within an International Radio Strategy.

Greater Toronto Area Region

Front line officers have indicated in the National Radio Strategy report that the radio, other than the sidearm, is their most important tool. It's great that we have a budget in place which then would dictate the funding for training and equipment, but the most critical thing is that we as agency can communicate with one another. The radio is a tool, but it is only as good as the operator.

- From reading the strategy, it appears that the CBSA is trying to implement digitalization of the radios by accessing broadband at the provincial level. The question asked is, shouldn't the CBSA, in conjunction with other federal agencies, create a national system and see about building the required towers at the existing ports and other locations best served by those federal agencies? Having a national digital radio-telecommunication program in place providing the federal agencies with secure emergency broadband access that will not be taken away or usurped during an emergency/crisis situation seems a must and not a luxury.

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- Ability for radio system to issue a "broadcast signal" to all users in an emergency situation. The purpose of the broadcast signal is to alert all users that an important message will be relayed across radio.
    - For example, Amber Alert or Extreme weather condition - TV stations will issue a broadcast signal "BEEP, BEEP, BEEP" and then relay message.
    - We should have the same ability to quickly transmit messages of importance to CBSA employees (Bomb Threats, Amber Alerts, other emergency situations, etc.).

- The agency as a whole needs to be doing port/regional/or national exercises, at least monthly. The only way for emergency procedures to become a reflex is to practice.

- The different regions in Canada all have similar requests for functionality and sizing/weight issues. How they are addressed will depend on if it's national that is supplying and organizing radios and making them standard issue across the nation, or if each port will be responsible to outfit their officers within their allotted budgets.

- With regards to training, this needs to be pushed forward at both the college and the port/regional area at the same time. Further, this should be completed in the first year, since this is a critical function when there is an emergency. Will the front line officers have a chance to put input into the training material? Basic radio protocol is transferable to any radio system, so having the same equipment nationally in place is not critical.

- The SOP's need to be issued in a timely manner as this will give a basic framework for all ports to work from until the national strategy is fully implemented.

- If the volume knobs receive the slightest of bumps it re-sets the volume to inaudible, or switches it off. Is it possible to lock the volume knob and adjust the volume strictly using the shoulder piece volume control?

Pacific Region

I really like the three pillar approach. I am of the view that the issue of radio communication is of critical importance to the effectiveness of front line operations. When/where this issue becomes most acute is at the time of an emergency or critical incident**. Interoperability** is the key to any effective system and to ensuring the health and safety of our personnel; this is most evident when we have multiple responders rushing to and addressing an incident (fire, paramedics, police, investigators, etc). We are best positioned to deal with whatever presents itself when our operational folks have the ability to inform in real time as to what is occurring (or what the situation is on the ground upon arrival…to help determine approach/needs). Clarity of roles, training and specific Operating procedures will be well received in the field.

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In this region, we have been working with E-COMM and while it costs us, we are most focussed on this being a necessary investment to assist our Enforcement and Inland officers who are operating throughout the Province (not at a defined space like a Port of Entry), in various law enforcement jurisdictions, albeit for CBSA purposes.

I think the paper is well written and identifies what will be two of the biggest challenges: 1. resources and dedicating the right amount to getting it right and 2. the rapidly changing technology landscape (analog vs. digital).

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Annex B – Radio Inventory

The following table provides an overview of the user equipment (portable, desktop and mobile radios) currently deployed in the Agency (August 2015).

Table B1: Radio Equipment Inventory

Technology	Atlantic	Quebec	NOR	GTA	SOR	Prairies	Pacific	Total
PASS (Analog)	480	1011	798	0	824	659	684	4456
Non-PASS (Analog)	73	265	0	0	789	0	0	1127
Digital (CBSA)	0	219	13	0	0	6	292	530
Digital (Provincial, Territorial and Municipal)	140	154	30	656	0	228	35	1243
Digital (Private Entities)	93	76	76	272	90	233	601	1441
Total	**786**	**1725**	**908**	**928**	**1613**	**1120**	**1612**	**8797**

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Annex C – Radio Communication System

The following table is an overview of current digital public safety radio systems providing radio communication capabilities to our officers. The table also provides potential future digital radio communication systems in which analog users could migrate onto (based on financial viability).

Table C.1: Overview of the current digital and potential future public safety grade radio systems

<table>
<tr><th></th><th>Atlantic</th><th>Quebec</th><th>NOR</th><th>GTA</th><th>SOR</th><th>Prairies</th><th>Pacific</th></tr>
<tr><td rowspan="4">Current</td><td rowspan="3">Nova Scotia (TMR2)</td><td>Province of Quebec (RENIR)</td><td>City of Ottawa System</td><td rowspan="3">Region of Peel System (VCOM)</td><td rowspan="3"></td><td>Manitoba MTS Fleetnet</td><td>CBSA (Vancouver Marine)</td></tr>
<tr><td>CBSA (Montreal Marine)</td><td rowspan="2">CBSA (Lansdowne EIOD)</td><td>Province of Saskatchewan (PPSTN)</td><td>CBSA (Prince Rupert)</td></tr>
<tr><td>CBSA (Quebec City)</td><td rowspan="2">CBSA (Fort McMurray)</td><td>Yukon System</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>ECOMM System</td></tr>
<tr><td rowspan="5">Future Systems</td><td>Province of NB System</td><td rowspan="2">City of Montreal</td><td>Glentel System (Ottawa, Cornwall)</td><td>York Police System</td><td>City of Windsor System</td><td rowspan="2">Province of Alberta (AFFRCS)</td><td rowspan="2">CBSA (Vancouver Island)</td></tr>
<tr><td>Province of PEI System</td><td rowspan="2">CBSA Systems</td><td>Durham Police System</td><td>Canquest System</td></tr>
<tr><td>Province of NF System</td><td rowspan="2">CBSA Systems</td><td>Toronto Police System</td><td>Niagara Police System</td><td rowspan="2">CBSA Systems</td><td rowspan="2">CBSA Systems</td></tr>
<tr><td>CBSA Systems</td><td colspan="3">Province of Ontario System</td></tr>
<tr><td colspan="7">National Public Safety Broadband Network (PSBN)</td></tr>
</table>

Note 1: Numerous provincial radio communication systems are currently analog. They are anticipated to migrate to a digital system within the next 5 years.
Note 2: Number of users on current public safety grade radio communication could be increased if financially viable (Pillar 3 of the Strategy)
Note 3: The National Public Safety Broadband Network (PSBN) is anticipated for 2020+
Note 4: Commercial systems using cellular infrastructure and satellite communication are also available in all regions.

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Annex D – Financial Overview

The following table represents a summary of the funds spent/allocated to the Radio Program in the last 5 years.

	Salary	O&M	Capital	Total
2011-2012	$592,714	$5,284,731	$691,034	$6,568,479
2012-2013	$582,600	$6,370,124	0	$6,952,724
2013-2014	$608,768	$5,990,831	$58,514	$6,658,113
2014-2015	$657,706	$6,007,153	0	$6,664,859
2015-2016 (P5 projection)	$520,921	$5,472,665	$300,000	$6,293,586

Note: 2015-2016 Salary reflects the group's efforts funded by the Small and Remote Ports of Entry initiative.

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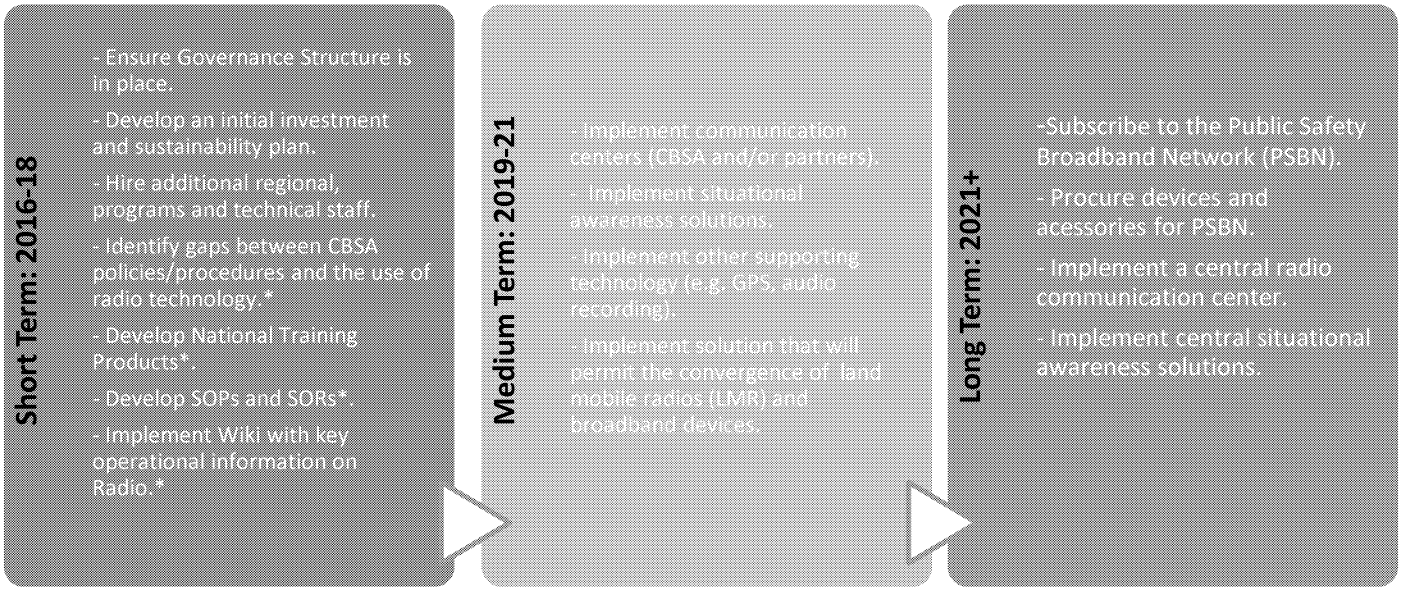
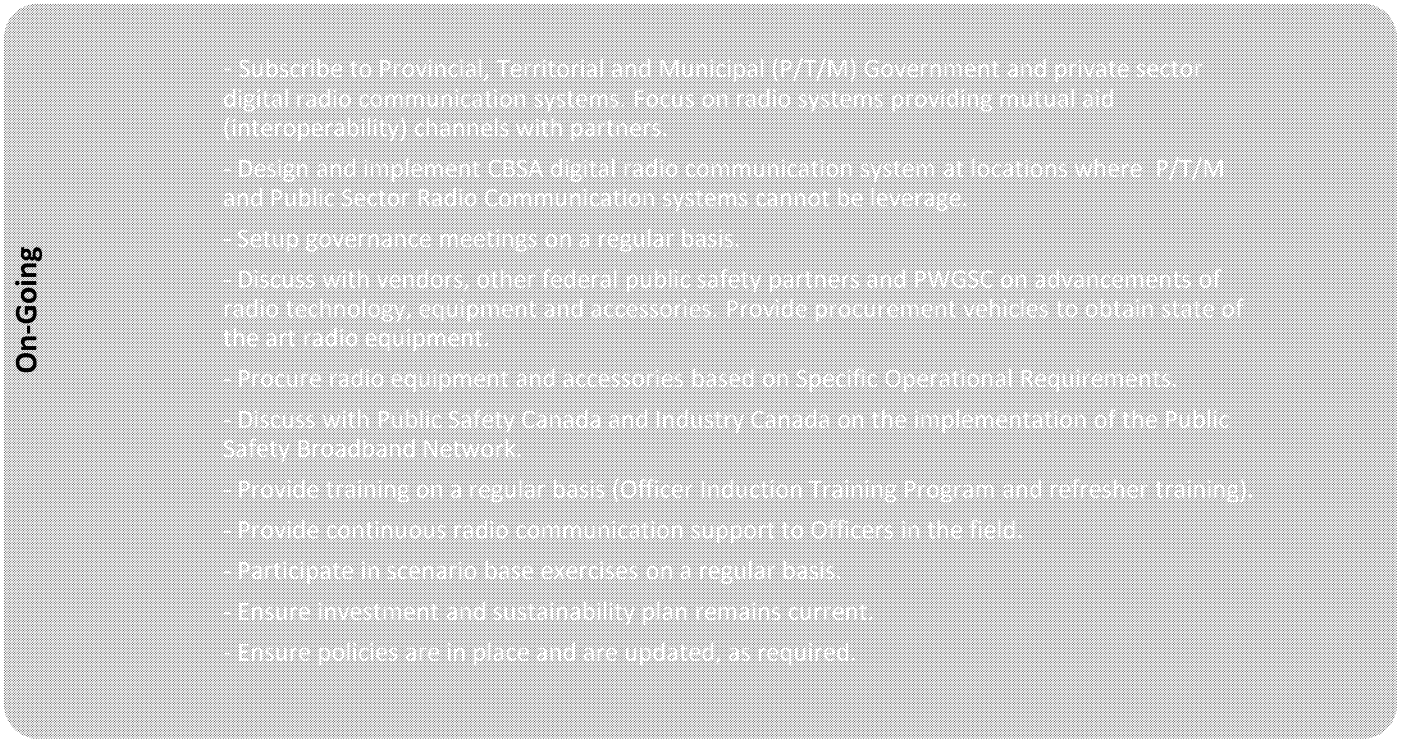
Annex E – Timeline

This timeline provides the short, medium and long term plan to achieve the main objectives identified in the National Radio Strategy based on the assumption that additional funding will be made available. Some objectives will however require continuous updates due to the nature of the deliverable. These objectives will be identified with an asterisk (*).





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Annex F – Technology versus Cost

This annex provides a snapshot of the current radio technology deployed in different regions vis à vis the cost of maintain such technology. It also provides a snapshot of the radio technology that could be deployed in the short to medium term, including the investment required to make this deployment possible in the proposed timeframe.

Tables F.1 and F.2 provide a rating level for the radio technology and the cost per radio per month, respectively.

Table F.1: Rating Level based on the radio technology

Level	Technology
1	Analog System
2	Analog – Trunked System
3	Digital Commercial System
4	CBSA Digital Conventional Radio System
5	CBSA or Third Party Digital Trunked Radio System
6	Digital Trunked Radio System with Interoperability Channels with Canadian First Responders
7	Digital Trunked Radio System with Interoperability Channels with Canadian and US First Responders

Table F.2: Rating Level based on the cost (includes infrastructure, user terminals and/or air time cost)

Level	Cost per radio per month
1	Above 400$
2	Up to 400$
3	Up to 300$
4	Up to 200$
5	Up to 100$
6	Up to 50$

Atlantic Region

Currently, officers in Newfoundland are operating radios on either the provincial analog radio system or a CBSA digital solution. In Nova Scotia, all teams are operating on the provincial digital system known as TMR2. TMR2 provides interoperability channels with other first responders. In New Brunswick, Ports of Entry are still utilizing the CBSA legacy analog radio system known as PASS. The marine and the EIOD teams are operating digital radios by a third party service provider. Finally, for PEI, the few officers located in this province are utilizing the CBSA PASS radio system.

In the upcoming years, New Brunswick, PEI and Newfoundland will all be building their provincial digital encrypted radio systems providing interoperability with other first responders. The three (3) Maritime systems will be interconnected to provide seamless communication across these provinces. The CBSA can leverage the use of these systems when they become available by subscribing to all provincial systems in the Atlantic region.

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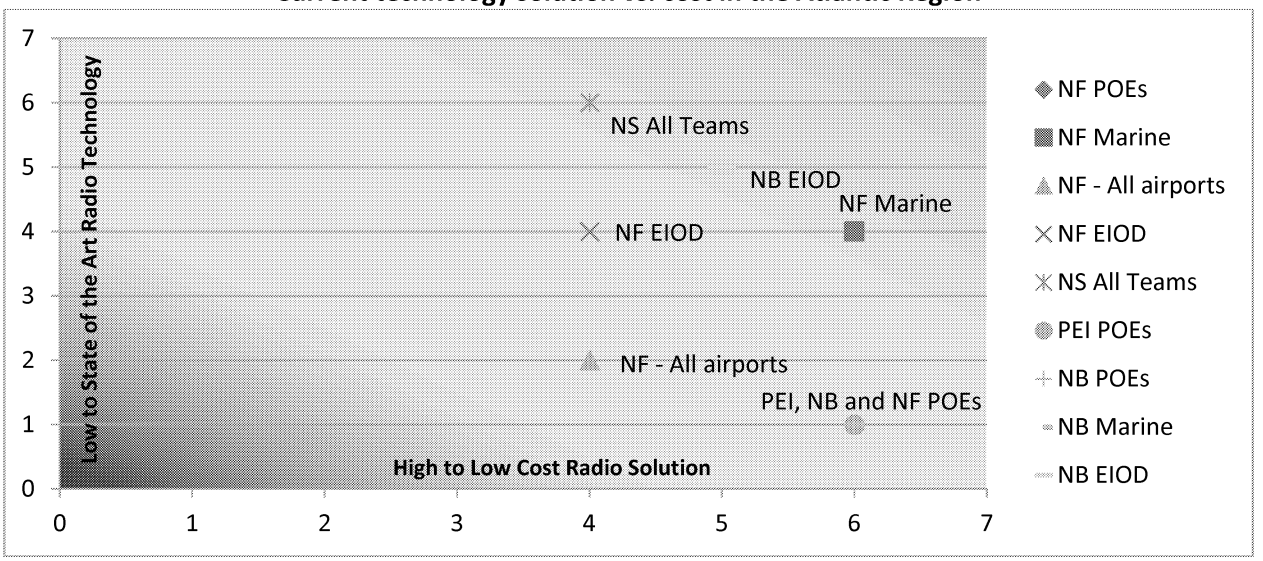
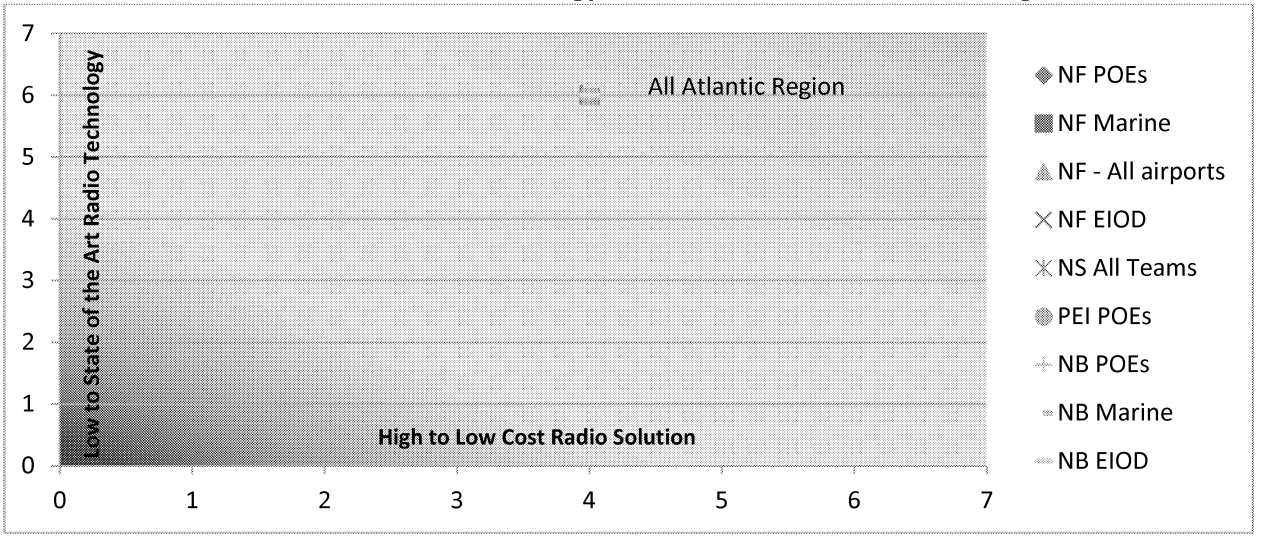
Current technology solution vs. cost in the Atlantic Region



Short to medium term technology solution vs. cost in the Atlantic Region



Based on preliminary estimation, an initial investment of $1.3 million will be required for the procurement of user terminals. In addition, a yearly on-going cost of $700,000 for airtime, asset replacement and maintenance will be required as part of the investment and sustainability plan for the Atlantic Region.

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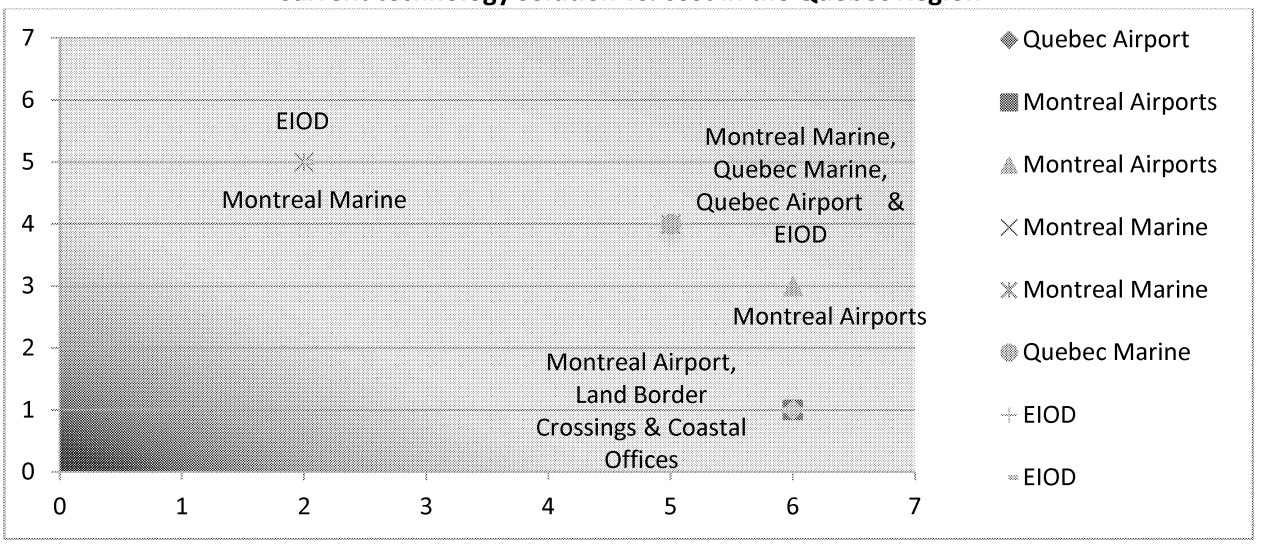
Quebec Region

In the Quebec region, land border crossings are operating radios on the CBSA PASS systems. Costal offices and the Montreal Airport are operating on an analog radio communication system. Teams in Quebec City (Marine, EIOD and Jean Lesage Airport) are recently utilizing a CBSA P25 conventional system for their radio communication requirements. The Montreal Marine operations have radios operating on a CBSA P25 conventional system. They also have a few radios on the provincial digital system known as RENIR. RENIR is also currently used by the EIOD teams since they often travel across the province to perform their duties. A few teams within the Airports district are using devices on a commercial radio system as they need to travel to different locations within the Montreal area. Wide area coverage is therefore required.

In the upcoming years, additional officers could be migrated to the provincial digital system as it provides interoperability with first responders. However, the air time fee for RENIR is costly, and will limit the number of officers that can be migrated onto this system. This said, the CBSA may need to build their own digital system at land border crossings. Other possible solutions would be to leverage the upcoming City of Montreal upcoming digital encrypted radio system for the Airports District. The CBSA could consider migrating officers onto this system if it is financially viable.

Current technology solution vs. cost in the Quebec Region



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Short to medium term technology solution vs. cost in the Quebec Region

Based on preliminary estimation, an initial investment of $2.5 million will be required for the procurement of user terminals and building radio infrastructure in the short to medium term. In addition, a yearly on-going cost of $1.2 million for airtime, asset replacement and maintenance will be needed as part of the investment and sustainability plan for the Quebec region.

Northern Ontario Region

In the Northern Ontario region, land border crossings are operating radios on the CBSA PASS systems. Some teams in Ottawa (EIOD and Air Cargo) are currently utilizing the City of Ottawa digital encrypted radio system. However, no interoperability channels are currently available. The Ottawa airport still remains on the PASS system. EIOD officers in Lansdowne are operating on a CBSA P25 conventional system. Different teams within the region are also using devices on a commercial radio system when wide area coverage is required to perform their duties.

Since Ontario is still numerous years away of building their provincial digital encrypted radio communication system, the CBSA will need to leverage private third party systems and/or build their own P25 conventional radio systems locally at land border crossings. As for the Ottawa airport, they could migrate to the City of Ottawa system in the coming years. Adding interoperability channels could be negotiated with first responders and added to the CBSA radio fleet in the National Capital Region. Different teams within the region will likely continue to use devices on a commercial radio system when wide area coverage is required.

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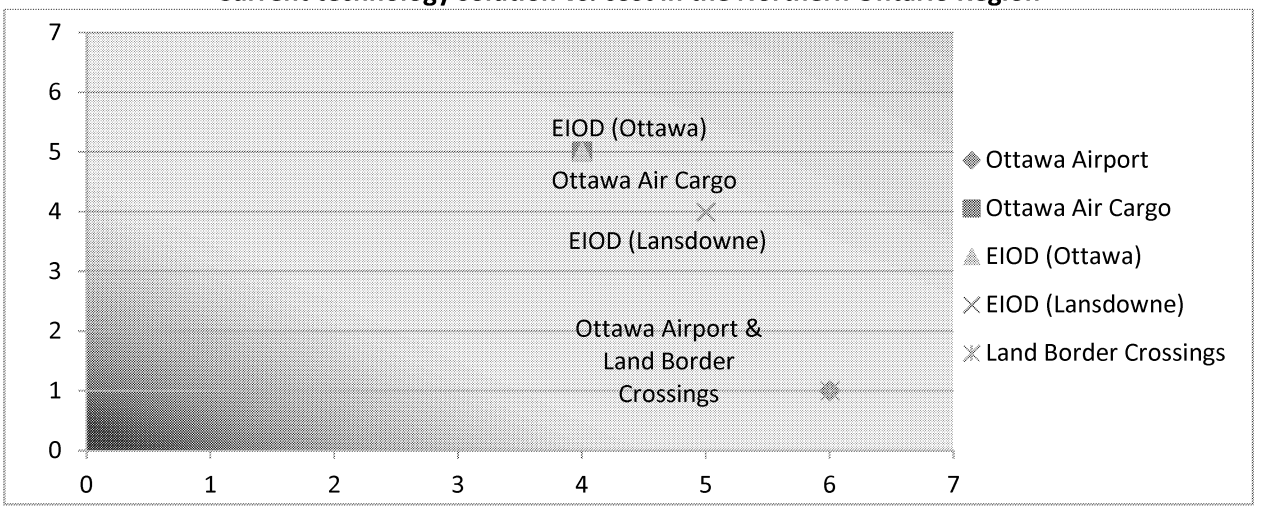
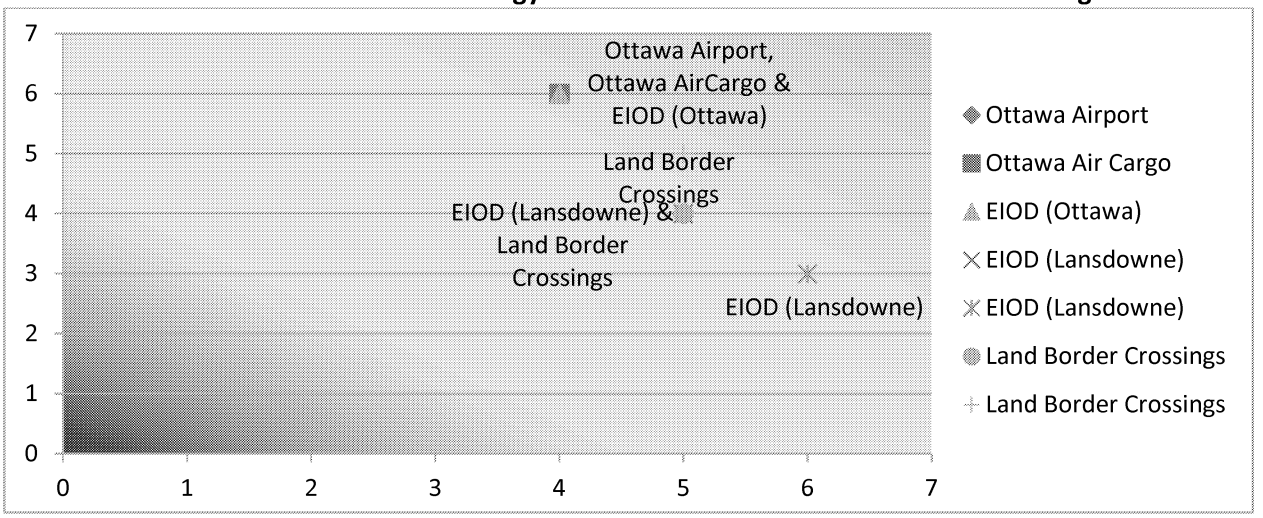
Current technology solution vs. cost in the Northern Ontario Region



Short to medium term technology solution vs. cost in the Northern Ontario Region



Based on preliminary estimation, an initial investment of $1.4 million will be required for the procurement of user terminals and building radio infrastructure in the short to medium term. In addition, a yearly on-going cost of $650,000 for airtime, asset replacement and maintenance will be required as part of the investment and sustainability plan for the Northern Ontario region.

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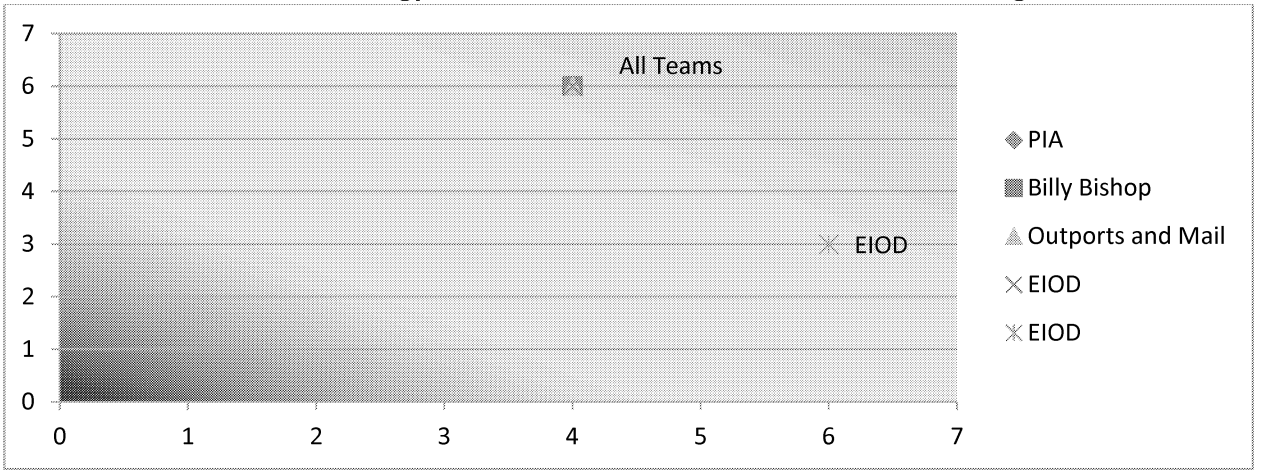
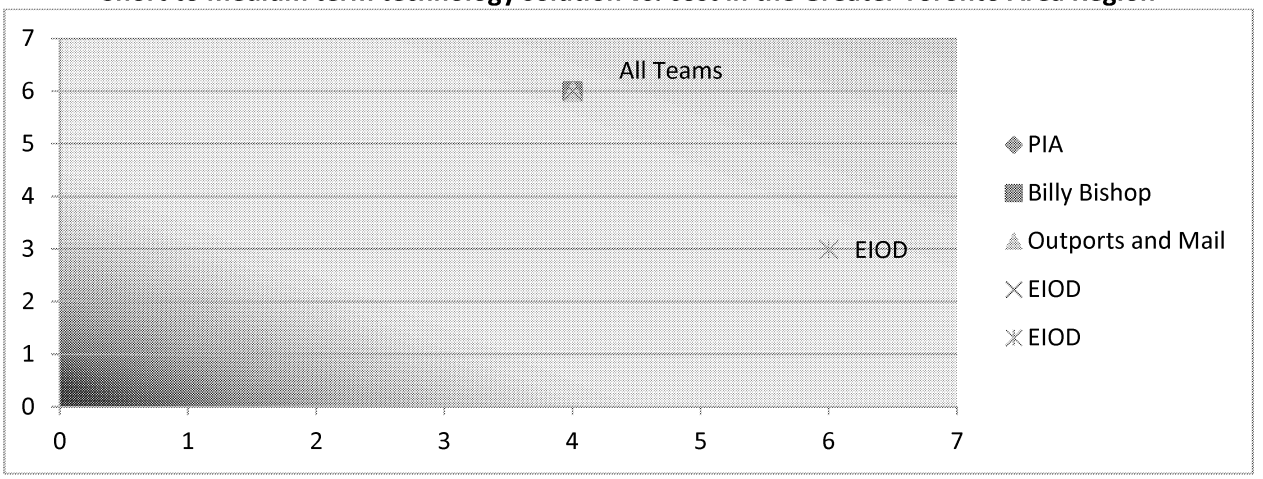
Greater Toronto Area Region

Currently, all teams in the Greater Toronto Area are operating on the Region of Peel's digital radio communication system (VCOM system) providing interoperability with other first responders. The VCOM coverage is currently being extended to Hamilton, Barrie, Oshawa and Kitchener/Waterloo Ports of Entry. Discussions with other local municipalities (e.g. Toronto, Durham and York) are taking place to determine if a few CBSA radios could operate on theses municipal digital radio communication systems so interoperability channels with additional first responders could be made available to the CBSA officers within the region. When wide area coverage is required, devices operating on a commercial system are also provided to officers.

Current technology solution vs. cost in the Greater Toronto Area Region



Short to medium term technology solution vs. cost in the Greater Toronto Area Region



In the short and medium term, the CBSA could invest in the procurement of radio supporting equipment such as monitoring and dispatch systems and audio recording equipment. It would represent an investment of $650,000. In addition, an on-going cost of $450,000 for airtime, asset replacement and maintenance should be made available as part of the investment and sustainability plan for the GTA Region.

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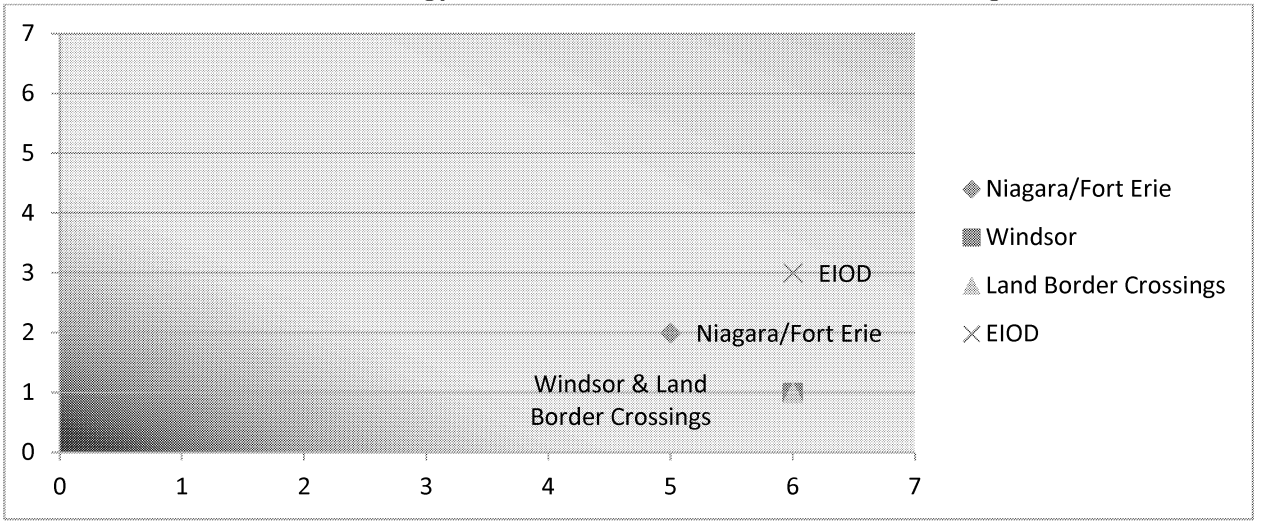
Southern Ontario Region

Currently, officers in Windsor and other land border crossings across the region are operating radios on the CBSA PASS radio system. In the Niagara and Fort Erie area, officers are operating their radios on an MPT analog trunked radio system operated by a third party service provider. When wide area coverage is required, especially for EIOD officers, devices operating on a commercial system are also provided.

In the upcoming year(s), the CBSA is looking at migrating our officers located in the Windsor area onto the City of Windsor digital encrypted radio systems providing interoperability with first responders not only in Canada, but also in the US. With the third party service provider located in the Niagara/Fort Erie area upgrading their analog trunked system to a digital encrypted trunked system, our officers in the would be provided with digital encrypted interoperable radio communication. For other ports of entry, the CBSA could leverage the use of local municipal systems and/or build our own digital conventional radio system. Different teams within the region will likely continue to use devices on a commercial radio system when wide area coverage is required.

Current technology solution vs. cost in the Southern Ontario Region



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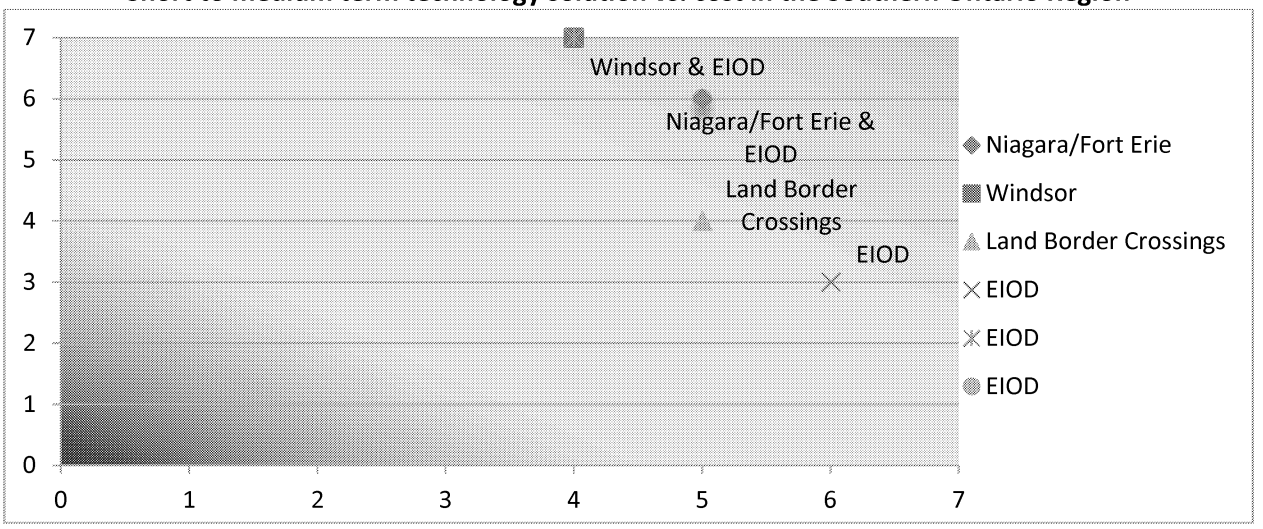
Short to medium term technology solution vs. cost in the Southern Ontario Region



Based on preliminary estimation, an initial investment of $3.4 million will be required for the procurement of user terminals and building radio infrastructure in the short to medium term. In addition, a yearly on-going cost of $1.8 million for airtime, asset replacement and maintenance will be required as part of the investment and sustainability plan for the Southern Ontario region.

Prairie Region

Currently, officers located in Manitoba are operating radios on either the provincial digital radio system known as MTS Fleetnet or the CBSA PASS system. In the province of Saskatchewan, officers located the Regina and Saskatoon airports as well at a few land border crossings, have recently been migrated to the provincial digital encrypted radio systems known as the Provincial Public Safety Telecommunications Network (PPSTN). PPSTN provides not only interoperability channels with Canadian first responders, but also interoperability channels with US public safety organizations. In Alberta, officers in Edmonton and Calgary airports as well as officers in EIOD are all using radios operating on a commercial radio communication system. Officers at land border crossings in Alberta are still utilizing the CBSA PASS system.

With the province of Manitoba looking at upgrading their provincial system, additional officers could migrate onto this system when the upgrade has been completed. In Saskatchewan, additional land border crossings could transition to PPSTN. Finally, the province of Alberta is in the process of building their provincial digital encrypted radio communication system known as the Alberta First Responders Radio Communication System (AFRRCS). Once AFRRCS becomes available in the coming year, officers could to transition to this system. There are plans to interconnect the three (3) prairie systems to provide seamless communication across the Prairies.

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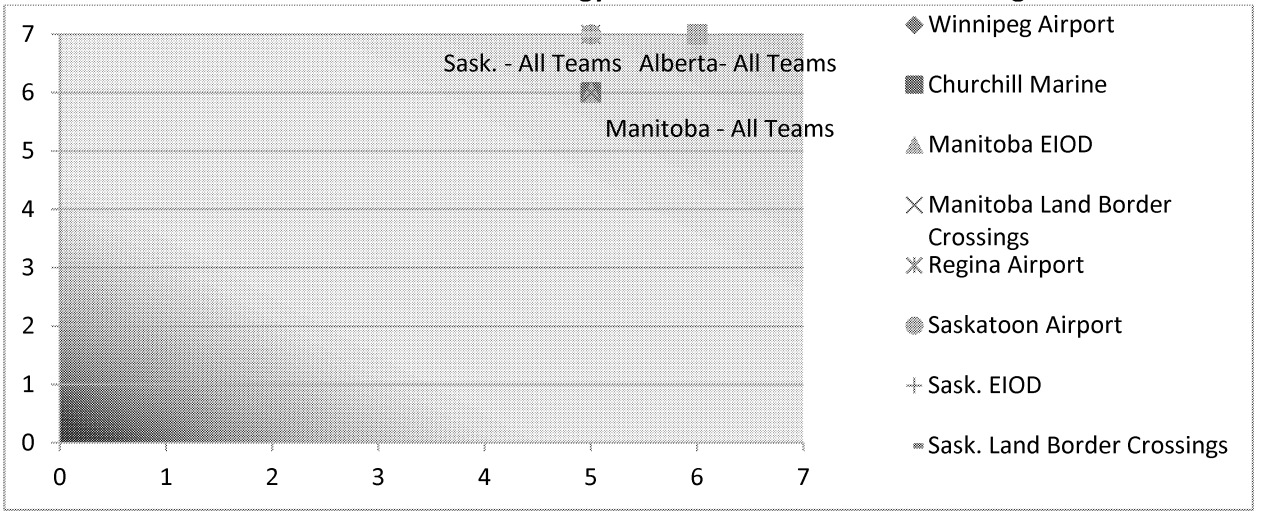
Current technology solution vs. cost in the Prairie Region

Short to medium term technology solution vs. cost in the Prairie Region



Based on preliminary estimation, an initial investment of $2.1 million will be required for the procurement of user terminals. In addition, a yearly on-going cost of $800,000 million for airtime, asset replacement and maintenance will need to be made available as part of the investment and sustainability plan for the Prairie Region.

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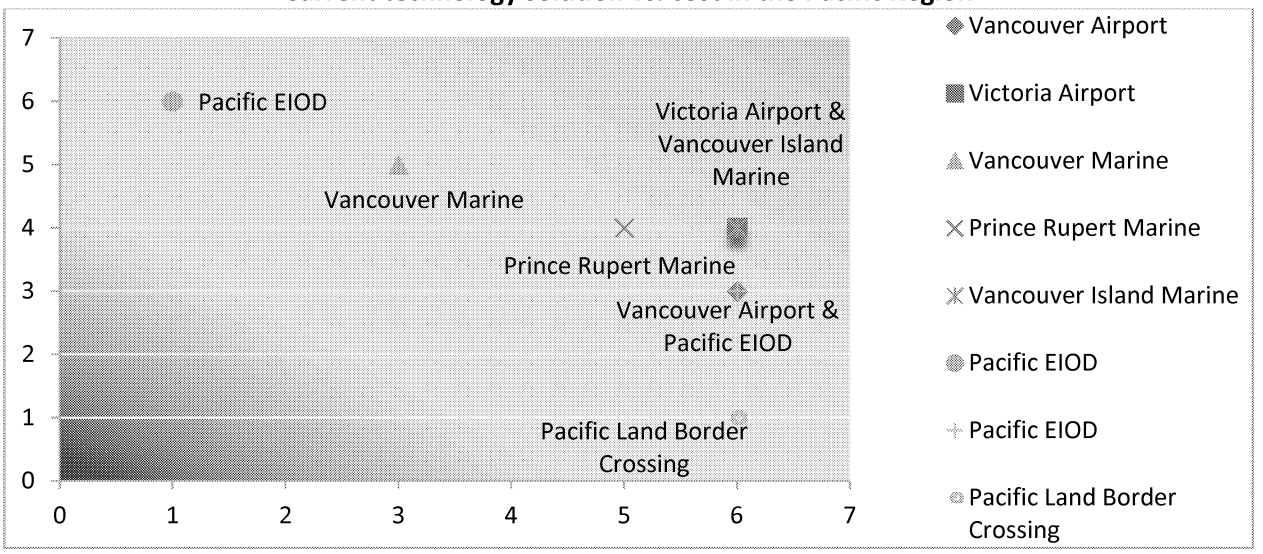
Pacific Region

In the Pacific region, land border crossings in mainland BC are operating radios on the CBSA PASS systems. Land borders crossings in Yukon are however on the territorial digital radio system known as the Mobile Radio System (MRS). The Vancouver Marine team is operating on a CBSA P25 trunked radio system while officers in Prince Rupert are on a CBSA P25 conventional system. A few EIOD officers in Vancouver area have radios on the E-Comm system. Teams on Vancouver Island are operating digital encrypted radios on a simplex mode (radio to radio communication). Other teams (e.g. Vancouver International Airport, Kelowna airports, EIOD) are using devices on a commercial radio system.

Since British Columbia is still numerous years away of building their provincial digital encrypted radio communication system, the CBSA will need to leverage private third party systems and/or build their own P25 conventional radio systems locally at land border crossings, marine operations and airports. In the coming year(s), the CBSA Vancouver Marine Radio System and the Prince Rupert Radio System will need to be upgraded since it will no longer be supported by the vendor after November 2016. This upgrade will provide a way for both systems to be interconnected. Functionalities such as monitoring and dispatch services and audio recording, will be made available to officers in Prince Rupert. Different teams within the region will likely continue to use devices on a commercial radio system when wide area coverage is required.

Current technology solution vs. cost in the Pacific Region



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Short to medium term technology solution vs. cost in the Pacific Region

Based on preliminary estimation, an initial investment of $3 million will be required for the procurement of user terminals and upgrading the current infrastructure. In addition, a yearly on-going cost of $1.1 million for airtime, asset replacement and maintenance will need to be made available as part of the investment and sustainability plan for the Pacific Region.

Atlantic Region:

C. Lorez, RDG, Atlantic Region
S. Robb/St. Croix, NB
C. Fleming/St. Croix, NB
C. McLean/ St. Croix, NB
J. Mason/ St. Croix, NB
M. McIver/ St. Croix, NB
J. Johnston/ St. Croix, NB
H. Golding/ St. Croix, NB
D. Carabott/ St. Croix, NB
C. Copp/ St. Croix, NB
S. McKinney/ St. Croix, NB
A. Moffatt/Ferry Point St. Stephen, NB
R. Hall/Ferry Point St. Stephen, NB
B. Grant/ St. Stephen 3rd Bridge, NB
E. Pole/St. Stephen, NB
S. Cox/Woodstock Rd-Bellville, NB
K. Dufour/Moncton, Southern NB, PEI
S. Emond/Moncton, NB
T. Firlotte/Southwest NB, PEI
D. Soucy/Grand Falls, NB
T. Thériault/Clair, NB
H.J. Himmelman et al./Halifax Waterfront Cargo Inspection Unit, NS
S. Cronin/Halifax (CIF), NS
E. Dwyer/Halifax (Warehouse), NS
B. Webber/Halifax (Marine), NS
C. Muise/Yarmouth, NS

Quebec Region:

B. Chiquette, RDG, Quebec Region
H. Kwan/EIOD- removal & investigation (Montréal)
R. Martel/Investigation (Montréal)
A. Lampron/Criminal Investigation (Montréal)
D. Giroux/Criminal Investigation (Montréal)
C. Bouchard/ PET Airport (Traveller immigration)
J. Cholette/PET Airport
M. Tarzia/PET Airport
A. Lamoureux/PET Airport (Enforcement)
D. Dubreuil/PET Airport (Operations)
K. Walls/ PET Airport (Traveller)
N. Deschamps/PET airport (Traveller)
J. Lussier-Houle, J Riel & C. Harper/Marine and Rail Services
L. Normandin/ Montréal (Youville)
F. Alary (FRT), P. Marcoux (JL Airport) and J. Daigle (Québec Centre)
S. Pelletier/ Renseignement
K.Bockus/Lacolle (Traffic)
R. Gallo & M. Hofer/Lacolle (Traveller)
J. Dupuis/Montérégie
S. Laroche/Lacolle
F. Marchand/Lacolle (Traveller)
M. Tousignant/Lacolle (Traveller)
M. Charland/Woburn
M. Trépanier/Woburn
M. Johnston/St. Armand
A. Roberge/St. Armand
A. Patenaude/St. Armand (Commercial)
G. Martel/Stanhope
A. Beaudoin/Stanhope
P. Létourneau/Stanhope
D. Chabot/Stanstead
C. Hudson-Dufresne/Stanstead
P. Desormeaux/Stanstead
K. Bélanger St-James/East-Hereford
N. Beaudoin/East-Hereford
L. Roy/Easthern Border
D. Fedrigucci/ Chartierville
M. Cormier/St-Pamphile
T. Grandmaison/St. Pamphile
R. Toste Camara/Highwater
M. Forget/Trout River
H. Paquet/Armstrong

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Northern Ontario Region (NOR):

L. Janes, RDG, NOR
J. Forget/Prescott
D. Arrowsmith/Lansdowne
A. Lajoie/Lansdowne & Kingston
D. Martin/Cornwall
D. Fournier/St. Laurent, Ottawa
J. Welyki/St. Laurent, Ottawa
S. Vaillancourt/St. Laurent, Ottawa (Criminal)
M. Countryman/Kingston (Criminal)
J. Cameron/Sault Ste. Marie
D. Taggart/Fort Frances
A. Ahola & D. Bakovic/Thunder Bay & Pigeon River

Greater Toronto Area Region:

G. Vragovic, RDG, GTA Region
H. Bashir/PIA
F. Gordon/PIA
L. Fauceglia/PIA (Commercial)
J. Tatem/PIA
A. Schnobel/PIA
S. Ryan/PIA (Passenger)
M. Muka/PIA (Passenger)
B. Junik/PIA (Passenger)
M. Stuart/ PIA
C. Annamunthodo/EIOD
V. Mannella/PIA
L. E. Anthony/PIA (Commercial)
Anonym/POD
R. Harris/PIA (Cargo)

Southern Ontario Region (SOR):

J. Hoek/St. Clair (Point Edward Blue Water Bridge)
G. Norland /St. Clair (Point Edward Blue Water Bridge-Traffic)
C. Whitson /St. Clair (Point Edward Blue Water Bridge-Traffic)
B. Campbell/St. Clair (Point Edward Blue Water Bridge)
R. Hoang/St. Clair (Point Edward Blue Water Bridge)
V. Sutton/St. Clair (Point Edward Blue Water Bridge)
G. Robinson/Windsor (Tunnel)
B. Eden and FRT/Niagara Falls
D. Lafferty/Fort Erie (Peace Bridge Traffic)
N. Ladouceur/Windsor (Ambassador Bridge Traffic)

Prairie Region:

M. Taylor for Prairie Region/Air and Land POEs

Pacific Region:

R. MacVicar, RGD, Pacific Region
S. Scott/Vancouver (Waterfront operations)
C. Kennedy/Vancouver (Waterfront operations)
J. O'Connor/Vancouver Metro Marine (Waterfront and Warehouse Operations)
G. McIntosh/Vancouver Metro Marine (Deltaport)
V. Clark/Vancouver Metro Marine (Deltaport)
G. Hornby /Vancouver Metro Marine (Deltaport)
D. Olivares and J. McRae/VIA
L. Paul/Vancouver (Criminal investigation)
S. Good/Inland Enforcement
R. Larose/Prince Rupert

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Pacific Region (continue):

L. Redmond/Pacific Highway (Traffic Truck Crossing)
H. Mand/Pacific Highway (Commercial Ops)
T. Joss/Whitehorse, YK
T. Velichko/Okanagan and Kootenay District
(combined responses for numerous POEs)
Superintendents and BSOs/Abbotsford, BC (
Commercial) –combined responses
Anonym/Location unknown (Traffic)
Anonym/Location unknown (Traffic)
Anonym/Location unknown

NHQ:

M. Chenier VP/ ISTB
Z. Barisic/Enforcement and Intelligence Programs
(Immigration Investigations)
R. Siguenza/ Program Compliance & Outreach Division
(Secondary Examinations)
A. Lamoureux/Traveller Programs
B. Kong/Programs Compliance & Outreach Division
M. Levesque/Infrastructure and Information Security

Annex H- Acronyms

AFRRCS	Alberta First Responders' Radio Communication System
BFOR	Bona fide occupational requirement
BSO	Border Services Officer
BTN	Border Technology Network
CBSA	Canada Border Services Agency
CISC	Communication Interoperability Strategy for Canada
DMR	Digital Mobile Radio
E&I	Enforcement & Intelligence
EIOD	Enforcement and Intelligence Operations Division
EY	Ernst & Young
FAQs	Frequently Asked Questions
GCMS	Global Case Management System
GPS	Global Positioning System
GTA	Greater Toronto Area
ISTB	Information, Science and Technology Branch
LMR	Land Mobile Radio
LTE	Long Term Evolution
MRS	Mobile Radio System
MTS	Manitoba Telecom Services
NB	New Brunswick
NF	Newfoundland
NOR	Northern Ontario Region
NS	Nova Scotia
P25	Project 25
PASS	Personal Alarm Security System
PEI	Prince Edward Island
POE	Port of Entry
PPSTN	Provincial Public Safety Telecommunication Network
PSBN	Public Safety Broadband Network
P/T/M	Provincial/Territorial/Municipal
PTT	Push To Talk
PWGSC	Public Works and Government Services Canada
RCMP	Royal Canadian Mounted Police
RENIR	Réseau national intégré de radiocommunication
SME	Subject Matter Expert
SOP	Standard Operating Procedure
SOR	Standard Operating Requirement
SOR	Southern Ontario Region
SSC	Shared Services Canada
TMR2	Trunked Mobile Radio System 2
US	United States

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Strategic Procurement and Assets Management - National Radio Strategy

Assets, Acquired Services and Comptrollership Systems (AASCS)

July 2017

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Agenda

- ✓ Partnership
- ✓ Challenges
- ✓ Strategic Procurement and Assets Management
- ✓ Next Steps

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Partnership

- Assets, Acquired Services and Comptrollership Systems (AASCS) has taken the lead in developing national commodity strategies in support of the CBSA`s procurement of goods and services

- Several programs, operations and projects have reaped benefits from the core expertise available within the CBSA in AASCS on these strategic functions

- Tactical procurement and assets management provides a holistic assessment of needs and supports sound business decisions

- An objective review of investment plans benefits both the Commodity Owner and AASCS, in that it allows for brainstorming and implementation of optimal models while maximizing return on investment

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Challenges

- Unless the CBSA decides to invest in building its own digital encrypted radio communication infrastructure, CBSA must rely on the willingness and ability of third party entities to provide such services where they are required
  - A one size fits all approach is not only costly but in some cases impossible
  - There exists a reliance on goodwill between other public safety agencies such as police or municipal entities to continue with subscription arrangements
  - Over 60% of the CBSA radio assets need to be modernized to meet operational requirements – living procurement and asset management strategies that are responsive to changing requirements and environmental/third party factors are required
  - A labour intensive review of regional and local plans to ensure consistency with the National Strategy would be indispensable
- The establishment of a dedicated team from ISTB and AASCS is necessary to ensure sound implementation

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Strategic Procurement and Asset Management

- A partnership between ISTB and AASCS allows for:
  - Continued analysis and building of business processes and requirements in support of a national lifecycle asset investment plan capable of adjusting to changing priorities and fiscal realities
  - Closer collaboration with PSPC to secure more suitable and/or flexible options from service providers and suppliers
  - Appointment of internal Procurement Specialists to negotiate agreements for required services such as technical writers, trainers or other National Radio Strategy complimentary needs
  - Support to the Radio Program looking at even more advantageous equipment warranty provisions
  - The review of any MOU to ensure that procurement and assets management provisions are clear and understood
  - The development of dashboards in support of life-cycle assets management

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Strategic Procurement and Asset Management – Desired Outcomes

The partnership and closer working relationship would:

- Support the Radio Program in their endeavours
- Allow for sound management decision-making by providing a more holistic view which includes
  - Procurement options and timelines
  - Life-cycle support
  - Disposal considerations
- Provide a sustained strategy that considers all aspects of life-cycle asset management
- Allow for a living radio plan that at any one time can be consulted to view dashboard information
- Support financial investment decisions and reallocation of funds by the CBSA if it becomes viable and doable

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Next Steps

- Once the National Radio Strategy partnered approach approved, appoint a senior AASCS specialist to work with ISTB
- Develop a roles and responsibilities document to ensure accountabilities and responsibilities including those of radio end users and regions are well-defined and understood
- Initiate discussions with PSPC to elevate the priority of CBSA radio procurement
- Produce procurement and assets management blueprints for ISTB`s consideration
- Work in conjunction with ISTB to develop a national reporting mechanism (dashboard) to support sound life cycle assets management